

AVIATION

The Oldest American Aeronautical Magazine

JUNE 13, 1927

Issued Weekly

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The "Columbia" a Few Hours Out From Roosevelt Field En Route To Germany

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XXII

NUMBER
24

SPECIAL FEATURES

CHANCE VOUGHT PRODUCTS MAINTAIN HIGH STANDARDS
THE ANODIC OXIDATION TREATMENT OF DURALUMIN
BIRD-LIKE DESIGN FEATURES BONNEY SEAGULL

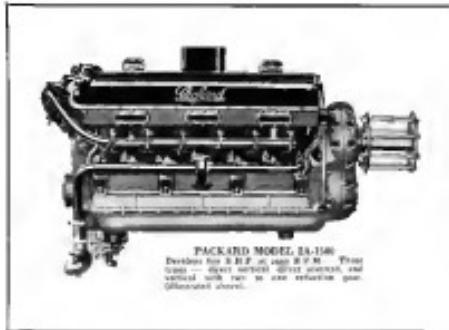
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Twelve Years of Pioneering in Aircraft Motor Development 1915-1927



PACKARD MODEL 2A-150
Developed for 3 H.P. at 2000 R.P.M. This
diesel engine features direct injection and
special carburetor to burn kerosene gas.
(Illustration shown.)

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Curtiss Flying Service, Inc. is now prepared to offer to a limited number of specially qualified students, a new type of flying course, designed particularly for those who intend to follow flying as a profession.

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"Flying time is here"

CURTISS FLYING SERVICE, INC.
Garden City, N. Y.



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With the Editor

The third airship non-stop Atlantic crossing is now an accomplished fact and the art of aviation is advanced to another record mark. The first flight of Alcock and Brown from Newfoundland to Ireland showed that trans-Atlantic flying was possible. Captain Lindbergh's New York to Paris flight not only confirmed that possibility in a most spectacular manner but established a new non-stop distance record for heavier than air machines. The Chamberlain-Lewis New York to Germany crossing is still another step forward. It has lengthened the non-stop distance record, more or less eliminated the layman's belief that Jack was a great governing factor in Captain Lindbergh's achievement, increased the weight per horsepower of the Wright Whirlwind and proved that trans-Atlantic flying is not a commercial aviation day dream. Too great press cannot be given to both recent flights. They have created a enthusiasm in aircraft which the public will be invaluable both here and abroad. Aviation pilots, designers and engine builders may rightfully take pride in the fact. It can more give the United States a press position in aeronautical progress and development.

Chamberlin Flies Bellanca Plane to Germany

Powered by a Wright "Whirlwind" Engine the "Columbi" Carries Pilot and Passenger to New World's Non-Stop Distance Record

FOR THE second time within the last thirty days an American had applied his wits to America's field of aviation and had taken off from the shores of America and winged his way to a safe landing on the mainland of Europe. This time it was the Bellanca monoplane "Columbi," built by the Wright Aeronautical Corp. and powered by a Wright "Whirlwind" engine, that rose from Roosevelt Field, L. I. at 4:05 A. M. Saturday June 3 and carried its pilot, Clarence D. Chamberlin, and a passenger, Charles A. Levine, to Helfta, Germany where it landed at midnight Sunday June 5 after covering a non-stop distance record.

The Columbi traversed 3,002 mi. at 43 hr.

The ultimate goal of the trans-Atlantic fliers was the city of Berlin but a shortage of gasoline brought about the landing at Helfta. After taking on fuel at Helfta Chamberlin took the Columbi into the air again but owing to the complete being put out of commission by the landing, and going astray in bad weather, a second forced landing was made in a marsh near Kettwig, Germany, and his passenger landed, thus halting temporarily the flight to the German capital.

Carried 485 Gal. of Gasoline

Soon after Chamberlin had succeeded definitely at Roosevelt Field that he could take off, Carl F. Schrey, chairman of the Control Committee of the National Aeronautic Association, installed a laterngraph in the Columbi and invited it. The pilot then made a final inspection of his plane while fuel supplies were prepared for the long flight. The fuel tank of the aircraft contained 485 gallons of gasoline. The tank was divided into two sections and each tank held two gallons of gasoline, sugar, a bottle of coffee, half a dozen oranges and three cans of the regulation United States Army "rations" or emergency rations.

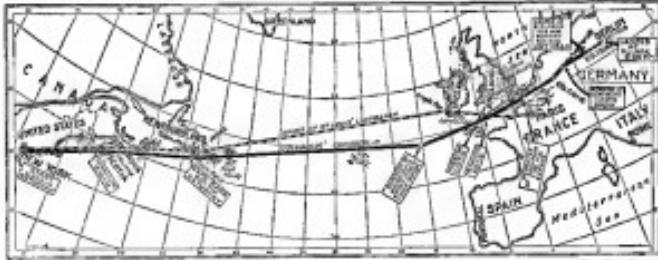
The 399-gallon tank in the fuselage was loaded to the brim. On top rested a number of drums that held an additional one-half gal. or a total of 405 gal. Drawn from a supply round the engine, a valve was attached to a valve in the side of the tank and a pair of jointed nozzles for fuel in case the plane was forced down. A very perishable, which furnishes a bright flame capable of lighting the sky for a considerable distance, safety lights, which spark as soon as they touch water, red flares, a box of safety matches and an electric flashlight with two storage batteries were in position.

Little time was lost in putting the monoplane on the runway and the crew was kept at a safe distance by a large



Chamberlin and Levine just before the start

force of onlookers and foot passengers. Chamberlin made two attempts to get the Columbi into the air and succeeded the second time. On the first try he flew over the water and turned back when some spectators got in the path of the strutting plane. The final take-off was a superb bit of pilot-



Map showing the "Columbi" route according to New York City Times

(New York Times)



The "Columbi" off the ground and en route to Germany.

ing. The total load of the Columbi when she took off was approximately 5,050 lb., as against a total weight of 3,550 lb. at departure Long Beach's.

The plane still carried the notice that the flight was under the auspices of the Brooklyn Chamber of Commerce. On the upper part of the fuselage was the figure Columbia, painted in colors. It afforded a striking contrast to the olive gray of the rest of the machine. The engine NACA 803 and the name "Columbi" were painted on the side in black. The word "Fokker" on the fuselage had been painted out.

One of the features of the flight was the night and landing of the returning Marquette bound for New York. Chamberlin brought the Columbi down to within 350 ft. of the water, circled the ocean greenhead and then opened up to the eastward.

The final landing at Helfta took place without any trouble whatever. Men working in the fields near by—out of whose

by various chances a German air mechanician out for a holiday on his nation's fairs—provided fuel and helped the stream to get under way again.

When the truck was there, who had been engaged at Tempelhof Field in Berlin for twelve hours at noon, suddenly learned of the Columbi's success, found a telephone and called Mr. Meister, Berlin. The first plane to start on the route of the voyage was a German Government machine with the Breidenbach representative in the Ministry of Transportation, Dr. Wm. Pöhl, counselor of the American Embassy, and several officials of Luftfahrt. Ambassador Schuman urgently desired to join the party, but was better for him to remain in Berlin to organize delivery of the mail for the mission. Eight other planes, including German and foreign newspaper men, photographers and aeronauts, one by one winged their way in the wake of the official craft.

Air Services in Switzerland Developed

The first regular air service in Switzerland was started by the Ad. Auto Aero Co. in Zurich in 1918, when that company's craft made 150 flights between Zurich, Berne and Lausanne, and carried a few passengers and 25,000 pieces of mail, and it was learned with the gradually widening experience that longer distances would have to be flown over recently and at high speed. This is 1924 this company extended its service to Milan and Vienna.

In 1923 similar developments were developed between Berne and other countries. The Ad. Auto company with the Swiss Lufthansa company in the Geneva-Basel area—the Swiss company operating to Zurich and the German company that city northward. The two companies operate in the same way as the Geneva-Lausanne-Zurich-Stuttgart-Erfurt-Halle-Berlin route, the Ad. Auto company serving Geneva and Zurich. It is planned to extend this service southward—Geneva-Morges-Basel-Moselle—and the German company equipment and personnel. Another form of cooperation is illustrated by the arrangement by which the other Swiss company (the Basell Auto Service Co.) and the Royal Aviation Co. of Holland, operate the new Geneva-Zürich-Basel-Berlin service. The craft of one company alternate with those of the other between Basel and Rotterdam.

The Swiss air channel between the Alps and the Jura

mountains is especially suitable to traffic between central and eastern Europe and the Orient, and the development of the services of these routes is an important problem. Efforts are being made to increase the movement in all directions of valuable and perishable goods by air.

The necessary subsidies for the air services have been provided largely by the cantons, communes and associations. The Federal authorities, being located in some 260,000 Swiss homes (\$30,000) for the carriage of mail and persons for regular air services. It is proposed to have a federal mail service, assuming greater authority and paying a larger subscription. Lighthouses, signal stations, emergency fields for night flying and improved weather reporting are subjects of public discussion.

The Second International Aerostatic meeting will be held between August 12 and 21, 1927 at Zurich. Its program will be national and international in nature, and great interest is expected to be aroused.

Spanish Pilot to Try Spain to New York Hop

Plans are now being made by Commander Prince of the Spanish Army, who recently flew Spain to Argentina, for a flight from Coruna, Spain to New York. He expects to take off next August and will pilot a Spanish-built plane equipped with two 300-hp. engines and capable of developing power for a seating radius of 2,400 mi.



Three Chance Vought VE-7's in the Cuban Air Service

Chance Vought Products Maintain High Standard of Quality and Performance

From the Original VE-7 Model to the New "Corsair," Which Holds Four World's Records, Soundness of Design has Been a Governing Factor

MONG THE leaders in the aeroplane industry in the United States is the name Vought, Inc., to which is also attached the name Vought Aeroplane Company. Vought is the synonym of quality, an immediate indication of excellent workmanship, sturdy construction, greater maneuverability, fine workmanship, and presenting one great sense to the customer.

The Vought organization always felt in their product told the own story, and those who know it well, The soundness of design used by the Vought engineers has always resulted in planes which have had the greatest performance for the class of work to be done.

The aeroplane industry in general has had many ups and downs since the World War, but the Chance Vought



Assembly Shop in Chance Vought Factory

Company has enjoyed a steady business, which has increased each year, and still kept its foothold well in line with the gradual growth of the industry. This steady demand for

Vought planes is due entirely to one thing—their experience in the art of aircraft design and the way they were designed.

The Vought freight and landing field equipment is well exemplified by their adoption of air-cooled engines exclusively several years ago. More air-cooled engine aeroplanes have been built in the Vought factory than by any other manufacturer in the country and the soundness of this policy has been conclusively demonstrated in a spectacular manner.

Credit should also be given the Vought organization for the construction of the Marmon-Herrington engine which resulted in the manufacture of the Wright E-2200 engine, the Pratt & Whitney "Wasp" engine. These engines have proved to be a real development in American power plants, and it was the requirement of such an engine for the newest Vought, the "Corsair," that caused the Navy Department to enter the particular phase of development.

Each Model an Advance in Design

Beginning with the VE series in 1918, down through the VO series and to the present "Corsair" types, each Vought model, by its advanced and proven performance and high qualities, has immediately taken its place not equalled in reliability or quality in the Vought planes.

The first Vought Model, the VE-5, was built for the U. S. Army Air Service, entered in the Army competition for advanced training planes, and was easily the winner. A large number of this model were built for the Army and most of them are still in service. A number of the VE series were also purchased by the U. S. Navy for advanced training and gunnery practice.

The first U. S. aircraft company, the U. S. "Langley," was officially equipped with observation planes of the Vought VE-6 type exclusively. Many of these planes are still in operation on the "Langley," and have demonstrated their

safety to stand up for many years under the strenuous regimen of task landings with mounting gear.

The first of the VO series was the Model VO-1, a two-place observation plane of the convertible land-and-water type. This model was adopted by the U. S. Navy as the seaplane version, which is especially fitted for the catapult equipped biplane and fast naval carriers, two places of each type being assigned to each ship.

The series given in that most numerous of all aircraft, catapult, was so satisfactory that the Navy has purchased some 200 of these planes for many other types of service, including use at Naval Reserve Air Stations. This model VO-1 is also being used in the Cuban Air Service, the Mexican Air Service, and in several other South American countries.

Performance Proves the Quality

One of the last of the VO series, the VO-1, was a single-seater training fighter. This model was the first production type in which a supercharger had been installed with an air-cooled engine. The performance of this ship is remarkable, particularly at altitude. The setting of this plane in respect to the world speed record is over 100 mph.

The adoption of Vought planes by the Model VO-2, by the United States Coast Guard as the first plane equipment for their newly formed Air Service, is also indicative of the quality of service given by these early planes. This selection was made only after a number of Vought planes had been borrowed from the Navy, and given strenuous trials for a non-combatant period.

The real flying qualities and pilot performance shown by Navy flying personnel is well indicated in the operating record established by Vought planes. In fact, during the period from 1918 to 1926, in this period, in the U. S. Navy alone 25,000 hours, approximately 3,800,000 miles of flying, was done in Vought planes. This is three times as much as was done in the Navy in any other type built since

the World War. And it did not include the hours flown in the U. S. Army Air Service in the Cuban Service and in the Air Services of several countries in South America.

Vought "Corsair" Now in Production

The latest Vought model, the "Corsair" is now in production and area in the short time it has been in the air it has far exceeded the previous models which had been so elegantly successful. This plane incorporates many new and in-



Chance Vought Welding Dept.

tegrating features and is designed around the Pratt & Whitney "Wasp" air-cooled engine of 455 hp.

The first plane of this model, after having been put through all the strenuous service tests by Navy test pilots, including tests as landplane, as seaplane and for catapulting, all of which required short and smooth of short continuous flying, established four new World's Records within a period of five weeks.

On April 16, Lieut. G. R. Henderson, U.S.N., flying this model "Corsair" which had been well developed, took a new World's Seaplane Altitude Record of 25,215 ft. carrying a bullet load of 1,000 lb. in addition of pilot, fuel, equipment, etc.

On April 23, flying the same plane, Lieut. S. W. Gallopy, U.S.N., made a new seaplane speed record for 100 km around a closed course of 55 km, covering the same distance in 100 sec. The average speed attained was 167.263 miles per hour.

A week later, on April 26, Lieut. August D. Turner, U.S.N., under the same conditions and with the same plane covered 136.075 m.p.h. for 500 km.

New World's Seaplane Speed Record

A fourth World's Record was made on May 11, when Lieut. Bradford Brown, U.S.N., took the same plane, and flying around a short course of 55 km, made a new World's Seaplane Speed Record for 2000 m.p.h. when he averaged 136.03 m.p.h. 27 m.p.h. more than the former record.

Against the many aircraft recently flown by the "Corsair" flying corps, the best that the latest type single seater, showed only a few miles lower speed at sea-level, with its climb, ceiling, maneuverability, and ultimate performance, in actually was superior to the present types fitted with the same engine.

Patents of the Chance Vought airplanes are printed on the winter spread of this issue.



Captain Lindbergh with M. Blaize, the French aviator who flew from Paris
via Manila to San Francisco in 1928, and Lieutenant Harrell.

N. A. C. A. Publishes Airfoil Report No. 260

Report No. 260, covering "Effect of a Flap and Aileron on the N. A. C. A. 36-4 Airfoil Section," compiled by George J. Wagner of Edwards Air Force Base for the National Advisory Committee for Aeronautics, contains results obtained at the Langley Memorial Aerodynamic Laboratory on an N. A. C. A. flat, fitted with a flap and ailerons, and tested in the variable density wind tunnel at a density of 30 atmospheres. Airfoil characteristics are given for the model up to 45 deg angle of attack with the flap set at various angles, and also with the aileron set at similar angles. The approximate lift distributions and the center of pressure locations show very good agreement with model at 35 deg angle of attack and with the aileron displaced 30 deg. Approximate poling moment and paving moment coefficients are determined for the various aileron settings.

A comparison of the calculated angles of zero lift and the calculated lift and center-of-pressure coefficients with those observed is given in the appendix. Report No. 260 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

European Air Firms to Experiment in Brazil

According to advice from Vice Consul R. Cahn, Rio de Janeiro, made public by the Department of Commerce, several European air firms have a license to do business in Brazil for several years but little has been done toward the establishment of services until recently, when three European companies were granted permission by the Brazilian Minister of Transportation to undertake aerial navigation on an experimental basis.

The Junker company was recently given permission to undertake a propaganda flight from Buenos Aires to Rio Grande and Paraíba. From there the Rondonia and Amazonas ports will be opened to the German firm. The same holding an aeronautical and passenger service between different parts of Brazil; one to extend from Rio de Janeiro to Rio Grande, skipping at Santos, Pará, São Paulo, and Pernambuco, one between Rio Grande and Santa Vitória do Palmar, extending on to Montevideo; provided such plan is acceptable to the Uruguayan Government. The Lufthansa Company has recently been authorized to commence aerial navigation in Brazil on an experimental basis. All of these companies are making the necessary preparations to start their plans, and it is expected in Brazil that aerial flights will be commenced in the near future.

Brainard Field Dedicated

The official dedication of Hartford's Municipal Airport and base of the Connecticut National Guard, 138th Observation Squadron, was held on Saturday, May 25, at Brainard Field. More than fifty planes, including the local National Guard unit, took part in the exercises. Gen. Col. Benjamin D. Foster, Commandant of Hartford Field, gave the dedicatory address in behalf of the Army. Assistant Secretary of the Navy, Capt. Alexander Edward F. Warner, pilotaged by Capt. H. G. Thompson, arrived at the field at one o'clock. Gen. M. E. Wilson, who was present at the naming of the Navy Day, was present as the guest of the Pratt & Whitney Aircraft Co. and was largely responsible for the presence of a number of Marine Corps and Navy Department planes. It was through his efforts that the "Los Angeles" was brought to Hartford.

The Marine Corps had twelve pursuit planes, a Navy Pursuit and an auxiliary plane at the dedication. Four of the pursuit planes were equipped with Pratt & Whitney Wasp engines, under the command of Major Brainerd. The Navy Day plane was represented by Commander Wink in a Vought VE-6A. Lieutenant General Miles in a D-2H, and Lieutenant Collyer, Bunn and Henderson, of the 2nd coast Air Station on pursuit planes, powered with Wasp engines.

The program of the afternoon started with an inspection of the Brainard Field equipment, which proved to be very efficient for a municipal and National Guard field. Following the inspection, Major Leed, Commandant of the Connecticut National Guard unit, led a formation of National Guard planes in exercises on the field. This was followed by formation flights by the Marine Corps Squadron and Marine Observation and Pursuit MacCready and Marine Corps in Curtiss Hawk and Intermediate. Finally the Army Interceptor, for the National Guard, in a VE-7. Throughout the entire exercises, the "Los Angeles" was circling over the field in constant radio communication with those below. Next came a fine exhibition by Lieutenant Stadham, of the Marine Corps, and an impressive one between three of the Marine Corps planes. The program ended with a paradesque jump by ten of the National Guard members.

During the afternoon, Colorado Air Transport, Inc., arrived and visited on short hops a few days ago enroute to Alaska. Captain George T. Tracy, manager, presented signs to the director's performances. A crowd of between fifteen and twenty thousand attended the dedication.

Governor Treadwell gave a dinner for the leading officers and civilians during the exercises and the National Guard entertained the pilots at a dinner.



H. M. King David of Iran reading an address after having visited the Imperial Airways hangar which "Sikorsky" at Bagdad on April 10, 1932. Mr. Harry Smith, the British High Commissioner in Iraq is seen on the right top left.

Varney Air Mail Service Hits Stride

Completes Year of Successful Operation Over Routes
C.A.M.-5 Despite Extreme Adverse Weather Conditions

By CHAS. T. WRIGHTSON

AFTER SOME difficulties, service over Route C.A.M.-5 from Salt Lake City to Press, Wash., got under way on June 1, 1932, for a year of unpredictable success, operating with 4 Wright Whirlwind F-4B engine airplanes.

It is a year at this writing that the service has been in operation and a maximum possible efficiency of performance has resulted. The Winter of '30 and '31 was one of the worst experienced in the Northwest. Under normal seasonal conditions a service ceasing even half of the year will be performed.

Salt Lake City is the eastern terminus of the route with Press, Wash., as the northwestern. The route is east of Boise, Idaho, where it follows the main operating and repair depots.



Service with full Whirlwind after one year's service on Route C.A.M.-5 and forms the basis for the operating personnel. Leaving Salt Lake City on arrival at the westbound trans-continentals, the flight is via Boise, Idaho, to Press, Wash., arriving at the latter point in time to connect with fast mail trains to the northern cities of the Northwest, namely, Seattle, Portland, and Spokane. The eastbound trans-continentals pass upon the early morning arrival of the mails from those same points and connects with the New York bound trans-continentals at Salt Lake City.

Thus, well leaving Seattle, etc., on Sunday evening arrives at Salt Lake Sunday afternoon, Chicago early Monday morning and New York Tuesday afternoon. Seven day service is established from Salt Lake City.

For the past eleven months of operation as an air mail carrier in excess of 90% was maintained—this, of course, approximating 1930 through the summer months and dropping slightly later in the Winter.

The efficiency of the mechanics may be appreciated when the following figures are shown:

Portland, Ore.—W. Whitwood, engine supervisor, June 2nd to April 30th,

1526 hr. in 65 min., or approx 250,000 hr.

Cost of repair parts for engine \$290.00

2 loose leafings an account of engine failure.

1 concentric plate failure (gasoline line).

13.6 gal gasoline line.

22.5 qt oil per hour (including all charges at 12 hr.) or .88 quarts per hour between changes.

Of the two major difficulties, one due to the weather and where it was impossible to obtain our regular information—Enroute Area No. 1 & 2. Other possible failures have been detected and prevented by rigid daily inspection. Engines are overhauled at 300 intervals and valves are ground at 150 hr. To date, the only replacements have been complete sets

of main in the second through overhaul of each engine, one pair per tank and tanking, two gauges, an outer valve spring, four rocker arms and one valve. All assembling to a cost of \$280.00.

Our acknowledgement must be given to the Wright Whirlwind for the first running time for itself as definitely successful throughout the world.

We were catapulted into a hole of circumstances that will be remembered—stated everything as the Whirlwind to pull us out. The Wright Corp. delivered the goods in record time and saw our past year's performance of continuous uniformed service in the most fitting testimonial that we can think of to adequately express our belief in the quality of the Whirlwind.

All credit for the past year's success must go to the pilot and mechanics serving the operations group. The operating personnel under the direction of Chief Pilot and Manager Louis B. Goldfarb consist of pilots Paul P. Scott, who was one of Otto Praeger's first, G. O. Peet, Fred A. Andert, Roy H. Beck, and Joe W. Taft, the mechanical force of Chief Mechanic Charles De Voschene, Engineer mechanic Frank Kastell, Guy Gandy, Ralph Miller, Mr. Deacon, E. G. Miller of Press and F. E. (Henry) Barnes, Mr. John

A. used here must be add of our payloads—post, press and radio, and that part of the organization corporate for it. Traffic Manager Fred S. Bell with office in Seattle, Wash., has under his a capable staff of men solving directly upon the problem of getting the valuable cargo of our mail to the most effective manner before the mailing



Route C.A.M.-5 plane now in temporary service on route C.A.M.-5.

plane. With branch offices in Portland and Spokane and represented by W. E. Brown and Charles V. McCullough respectively, these men are largely responsible for the 500,000 lb. of air mail carried in the past year and for its growth from the first month of '30 to today to the present total of 100,000 lb.

With the same force hitting hardily and another possible reduction in postage rate, capacity loads should soon be a reduction. And the load and load promoters, the passenger and express division on the Northwest is being studied as a supplement to increasing the gross income. What the logical steps will be to meet with this situation is hard to predict but that we will not have long to prepare is everywhere the unanimous opinion.

Fifty Thousand Attend Aeronautical Show

It is estimated that over 50,000 people visited the Aircraft Display held in Washington, D. C., from May 2 to 6. Over 4,000 people were given flights.

Pittsburgh Aero Club Model Contest

By RAY A. TURNER

The Aero Club of Pittsburgh held its Second Annual Boys Model Contest at Shadyside yesterday, May 21, at Hodges Field, the Municipal Airfield. The weather was clear and the air still, making it an ideal day for the many boys who participated to fly their models at their best. No records were broken, but every boy had great success, giving long distances to his opponents.

The contest was divided into two parts, one the duration section and the other the model action. There were many models of clever design and beautiful workmanship which re-



Winners in the duration section of Model Plane Contest held by the Aero Club of Pittsburgh.

ceived the admiration of the judges, who were as follows: Col. William Chase, Hon. James M. Magie, Col. Harry C. Fry, Jr., Major Louis D. Gardner, Capt. Thomas S. Voss and Edward M. Martin, president of the Aero Club.

The "speedsters" substantially avoided the Aero Club from the standpoint of publicity and consequently a large crowd of spectators were present to give the boys cheering.

Capt. Thomas S. Voss, U. S. Army Air Corps, commanding officer of Hodges Field, assisted by putting on an excellent exhibition. He had four planes in the air, piloted by Eddie Hales, Tom Ladd, Capt. W. P. Morris, Lieut. Robert E. Duke and Lieut. Theodore K. Moore.

Lieut. Robert A. Leathers furnished a surprise by displaying himself as a certain well known aviator, after due suspense and proceeded to take off in his favorite aircraft. The crew watched "her" hurriedly as "she" did all sorts of tricks in the air. Then suddenly, from out of the ship herself a figure with white feather and arms waving wildly, flew down to the crowd, exhorting them to discover later that it was only a dummy. This star gave the boys and spectators a great thrill.

Variety Assortment of Models

The prizes in each contest consisted of a silver cup, carrying a value of \$50.00, second prize, \$25.00; third \$20.00, fourth \$15.00; fifth a youth's despatch to "AVIATION WEEK" by Major Curtis Clegg, a first class airplane, value of \$250.00, which was awarded in each section. The cups were donated by Hon. James M. Magie for the winner of three contests in the duration section and by Col. Harry C. Fry, Jr., for the winner of three contests in the model section.

As a result of these contests, the juvenile airplane industry in Pittsburgh is booming. If there was any type of plane available in the model section, it is not in the books today. There were spiffy Fokkers, to use the language

of the boys—spunky Handley-Pages, bombers, bi-planes, and some types that neither Currie nor Wright know anything about. The youthful competitors impressed everyone with the fact that not only was it fun, but out of it they had gained an insight into aircraft construction that shamed many of the grown-ups. The Aero Club Committee which handled the contest gained a great deal of experience from the boy's knowledge and enthusiasm shown on the subject. The committee consisted of J. T. Foy, Chairman; Lester G. Graham; George E. Dickson; Edward W. Thomas; H. Frank Keenan.

Start Louisville-Cleveland Air Line

A daily passenger and express air line between Louisville, Ky., and Cincinnati, Ohio, which will be operated by the Eastern-Stiddle Co. of Cincinnati, was inaugurated May 15. Intermediate stops will be at Covington, Dayton, Columbus and Akron. Bus lines will be used exclusively.

A preliminary survey of the route has been under way throughout the past year. The survey has revealed definite possibilities in the route, of the scope of operations is wisely planned. The route passes through the major industrial centers and such has been adapted to the convenience of air transport. The physical characteristics of the terrain involved in the plan are suitable for safety in flying. The whole route is smooth and level, offering opportunity for intermediate landings under all conditions. All things considered, it is believed that wise business administration, coupled with the wide experience of the Eastern-Stiddle Co., will eventually result in profitable operation of the line.

The management of the service has won the greatest enthusiasm from chambers of commerce, civic organizations and newspapers all along the route. Business associates and friends of the Eastern-Stiddle Co. at points on the line have had great influence with local organizations in perfecting final arrangements for operation of the service. Special credit is due Major John Tracy of Cleveland, Dan Schreier of the Cincinnati Flying Service, Hon. S. Rollins of Akron, and the members of the Board of Trade of Louisville. Every effort gives strong assurance of the fullest cooperation and painstaking.

The number of airports has been tendered, however, offers have been provided and in many cases promises and assurances for express matter and passenger traffic have been given.

Miss Amy Pace of the Cincinnati Chamber of Commerce presented the "Wings" cup with her usual "The Chardonnay" case, a bottle of Ohio River water. Pending delivery of more Who-It's planes, the service will be supplemented by Who-It's. As more Who-It's are delivered, they will be distributed with names of the other cities on the route, with appropriate corrections of the planes after which they are named.

Following the closing exercises the first flight of seven planes left Cincinnati for Louisville. The passengers included newspaper men and prominent citizens. The Brooklyn National Bank of Cincinnati was a participant of flight to the President of the International Freight Growers Association, in Louisville.

The route is to be called "THE EN EXPRESS," "EN" being pronounced as "in." It is so named after the initials of T. Hayes Stiddle, president of the Eastern-Stiddle Co., and the initials of the name of the line.

The Eastern-Stiddle Co. of the Eastern-Stiddle Co. has had wide experience in flying over the country covered in the schedule. During the past year, their flights have flown more than 60,000 miles cross-country over the very territory served by the line. The complete route has been traversed seven times in the course of routine work and each pilot knows his country like a book. The pilots who will fly the route are Col. Charles E. Hales, Col. Paul Hales, Stanley G. Hartman, Raymond D. Morris and Donald G. McRae. These men are recognized from time to time as a series of dandies, by photos from Eastern-Stiddle salesmen in Ohio and Kentucky.

Inter-American Commission Drafts Convention

To Be Submitted to Governing Board of the Pan American Union
for Presentation to the Pan American Conference at Havana, Cuba

THIS Inter-American Commission on Commercial Aviation, which met in Washington, D. C., May 21, drafted a convention regulating commercial aviation in the Americas, which will be submitted to the Governing Board of the Pan American Union and by it to the Pan American Conference, to be held in Havana, Cuba, during January, 1938. The following countries participated in the discussions of the conference: Argentina, Chile, Colombia, Costa Rica, Ecuador, Dominican Republic, Guatemala, Mexico, Panama, Peru, Salvador, United States, Uruguay and Venezuela.

The American delegation was convened on the proposal to permit air travel and transportation to be carried on craft with permission of the underlying state and also on the proposal to permit its nationals to fly over certain restricted military zones, but to limit the areas where these zones may be located. The American delegation proposed to permit commercial aircraft to penetrate military zones.

The American delegation proposed to permit commercial aircraft to penetrate military zones, and to require that the underlying states grant permission to do so by means of signals.

Each contracting state is to grant in favor of pure freedom of passage to all aircraft flying over the air space above its territories and territorial waters. Private aircraft is defined as all classes of aircraft with the exception of military aircraft, which exclude Army aircraft commanded by persons in active military service or detailed for the purpose by competent authority. The word "aircraft" includes aircraft maintained on platforms, airships, balloons, airships and other vehicles.

Each contracting state is to grant in favor of pure freedom of passage to all aircraft to the private aircraft of the other contracting states, without distinction of nationality. Each contracting state has the right, for military reasons, or in the interests of public safety, to prohibit the descent of the other contracting states from flying over certain areas of its territory.

Markings on International Travel Planes

Each state shall have the sovereignty of the state in which they are registered and the registration entry and the certificate of registration shall contain a description of the aircraft or state, the number or other mark of identification given by the manufacturer of the aircraft, the registrant's name and address, the date of manufacture, the gross weight and the full name and address of the owner, as well as the date of registration. Every aircraft engaged in international travel must carry a distinctive name of its nationality, a certificate of registration, a certificate of ownership, a certificate of competency, list of passengers, with names, addresses and nationality if passengers are married, or personal effects located in the underlying territory shall be governed by the laws of such state.

The aircraft of our non-treaty state shall not be compelled to pay either or higher import charges than would be paid by national aircraft of the state visited and until special legislation is enacted, the rights and duties analogous to those of a captain of a merchant vessel, according to the laws of the state, shall be granted to the commander of the visiting plane. Preparation for damages caused to persons or property located in the underlying territory shall be governed by the laws of such state.



Members of the Inter-American Commission on Commercial Aviation which met in Washington, D. C., March four eight. At front in first row from left is Hon. Frank B. Murphy, and eighth from left is Hon. Lee E. MacLean, Jr., and eighth from right is Hon. Lee E. Coffin, president of Aerolite, Inc.



The new Junkers Passenger Monoplane D-9, under way.

Junkers Builds New Passenger Monoplane

Has Three Engines, a 700 Mile Cruising Radius and Luxurious Passenger Accommodations for Fifteen People

THE NEW Junkers passenger monoplane, type D-9, represents the experience acquired in the research department, as well as that gained in the manufacture and operating branches of the Junkers Corporation. Like all other Junkers machines the D-9 is of the cantilever, cantilever type, of all-metal, dorsal-surface construction, and fitted with a radial engine, and the tail unit has the wings. The total horsepower delivered by the three engines is 570, and the total weight of the machine is 10,500 lbs. Fully loaded this plane has a cruising range of 700 mi. and a cruising speed of 125 mph. The span of the wings is 90 ft. The length of the plane is 56 ft. and its height is 20 ft.

Passenger Cabin is 1 ft. Wide

The cabin which is provided for the accommodation of the passengers is adequately spacious being about 7 ft. wide. On account of the large dimensions of the cabin it has been possible to provide a double decker arrangement so that this machine which can be stored all freight and luggage in that one space need be served by the passengers in the cabin.

Underneath the passenger cabin, on each side of the central panel, are two baggage compartments where even the largest wardrobe trunks can be easily stored. These compartments are electrically illuminated. In addition to the baggage compartments there is also a roomy freight compartment where



Side view of the Junkers D-9.

The motor driving this generator also drives a compressor which provides compressed air for starting the engines on the ground. This electrical generating plant who supplies the electrical energy for the radio sending and receiving apparatus

in addition to the operation of landing and running lights. Of course, except when the machine is on the ground the electrical generating plant is driven by a separate powerplant, fuel injected. Two additional propellers are provided for driving two auxiliary pumps, either one of them being sufficient for feeding the three engines—this is in addition to a head-operated pump.

The longitudinal stability of this machine is rather remarkable. An adjustable stabilizer in mud which allows the passengers to move about freely without disturbing the stability of the machine in flight. In the emergency the double control surfaces of the tail unit will hold the machine in the event the engine should stop, still keep the plane under partial control, and a slight pressure on the rudder pedals being needed for that purpose. Any slight unbalanced pressure on the rudders is easily compensated from the cockpit.

The tail-end of the fuselage is so roomy that there is a doorway leading to the extreme end of the tail, and the fuselage rear end-hanging which covers the stern light is fitted with two handles which allow it to be easily moved down for inspection.

The double cockpit in front of the machine offers the exceptionally striking feature of being roomy and comfortable

in the interior of the cabin, thus providing very comfortable accommodations for fifteen passengers.

In designing the passenger cabin of the machine, the maximum width of 7 ft. has been increased and decreased so that it has been given three plenty of room to move around and comfortable big chairs to sit in. Moreover, by changing the seats, more passengers can be accommodated. This aircraft was designed with a view directed mainly toward the local transportation and sight flying for passenger service. As a result, the Junkers Corp. of America has recently opened offices at 51 Madison Ave., New York City.

Air Mail Stamps in Honor of Lindbergh

Postmaster General New has announced that a special air mail stamp, of ten-cent denomination, is to be issued in honor of Capt. Charles A. Lindbergh and his epoch-making flight across the Atlantic.

The Postmaster General said in making public his decision: "The Post Office Department has been gratified greatly by the many expressions of welcome and respect which have met the appearance and respect we hold for our air mail pilot who has made such a notable contribution to the science of aviation. The only appropriate thing we can do is to issue a stamp in his honor."

The new stamp will carry a portrait of Captain Lindbergh over the top portion, the use of the portrait of a living man upon a stamp is a first in postal history, according to the Postmaster General. On the date of the flight, June 20, 1927, the stamp will be sold at 10 cents per sheet, and will be available for the benefit of stamp collectors at the Philatelic Agency at Washington, and to other offices throughout the country as far as production will permit.

Atmospheric top of the sheet in white Roman letters will be the words "United States Postage" with the words "Lindbergh Air Mail" directly beneath. At the left of the portrait of the stamp will appear the small letter "U.S." and the number "10". At the bottom of the sheet will be a small line depicting the course of the flight, beginning with the word "New York" and ending with the word "Paris". At the bottom of the stamp is stamped letters in the word "Globe" and in both lower corners are the white minerals "Gold" and "Silver" and both letters are in the words "Globe". The stamp will be printed in blue, the color of the present 10-cent air mail stamp, and the name will be 75/300 by 181/100 inches.

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Explosion Flight Through Eastern Siberia

Eastern journals report a recent exploration flight through Eastern Siberia between Irkutsk and Steele with a Russian Junkers seaplane. This difficult stretch of flying territory follows the Lena River along the dual plateau stretching between Kirensk and Steele. It is intended to establish a regular passenger, freight and mail route along this route which is to connect Irkutsk and Steele and thus tap the gold fields of the Aldan territory.

Max Henne Joins Pacific Air Transport

Max Henne, former air mail pilot, has been appointed chief engineer of the Pacific Air Transport. Mr. Henne will be in charge of the new aircraft mechanics for the government air mail at Concord Field, near San Francisco. He has been engaged in aviation work since 1926. He has been well known in San Francisco as "Groucho Tyler," representative of the Guggenheim family, of whom he was a close friend. He will be in charge of the maintenance of the aircraft used in the San Francisco to Honolulu route.



Start of the Standard Balloon Race at Akron, O., as seen from the air.

Van Orman Wins National Balloon Race

Sails with side, W. W. Morton, to Beach near Bar Harbor, Me.
E. J. Hill is Second and Captain Kepner Captures Third Place

IN WINNING the National Balloon Race, held at Akron, O., for the third time, Ward T. Van Orman gained permanent possession of the lithographed Cup. On October 1, 1926, an son, W. W. Morton, had taken the prize, the Gosselot Trophy. On every since, except the period of the Gosselot Trophy, he has won the trophy to a sandy beach near Bar Harbor, Me., a distance of some 115 mi. E. J. Hill and his wife A. S. Schlesier of the Detroit Flying Club No. 3 captured second place in coming in fourth at Sherman, Me., after they had started about 600 mi. later. G. R. Rawlings and his wife, S. M., which came to earth at Bedford after a flight of about 600 mi.

The three leading contestants will have the privilege of representing the United States in the Gordon Bennett International Race which, on account of Vera Orman's victory last year, is to be held this year from Denver, Colo., on Sept. 18. A strong effort will be made in June to keep the Cup in this country for another year.

Largest Entry List on Record

Of unusual importance was the fact that the race this year drew the largest entry list that has ever taken part in a race in this country. Fifteen contestants took part, including four Army, three Navy, and eight civilian. Secretary Warner was out to see the Army men off, and General Patrick honored the Army pilots and their associates.

As far as the record in the National Race for the last five years, the balloons were listed in 25,000 cu. ft. capacity, which makes the race available for television pilots of even comparatively loaded aircraft.

The race management, under rather difficult conditions, was without doubt the most perfect yet seen in this country, and the entire program showed with how much care and thought the preparations had been made. Herbert Monroe



Van Orman.

served as Manager of the local committee, ably assisted by V. M. Hesling, Civil Service of the National Aeronautics Ad-

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ministration, and committee was Rufus while Col. C. D. Chandler was Master, Captain Johnson of the Army headed the waggons—so many that a few of the many who competed toward the success of the event.

An article describing the archaeological features of the race and the route followed by the leading contestants will appear in the June 20 issue of *Aeroplane*.

Guggenheim School Officially Opened

The new \$500,000 building of the Daniel Guggenheim School of Aviation at New York University officially opened on Saturday, June 4, 1927, when Daniel Guggenheim, founder, presented it to Chancellor Brown who accepted it on behalf of the University.

Mr. Guggenheim, Chanceller Brown, Dean Collier P. Blane of the College of Engineering, and Assistant Secretary of Commerce William P. MacCracken, Jr., in charge of aviation in that department, were present in the presence of Dean George and other officials. The first meeting of the faculty and of the Guggenheim School of Aviation was held Saturday, June 4, 1927, when Daniel Guggenheim, founder, presented the funds of the country's youth, and stated his belief in an education of what aviation holds for the nation's youth.

Mr. Guggenheim declared that it was through his son, Harry, an aviator in France in the World War, that he became interested in aviation and particularly in the foundations of the world's first Guggenheim School of Aviation. Harry Guggenheim was present at the opening of the building and presided at dinner before the big wind-up in operation.

Mr. Guggenheim Pleased With School

Satisfaction with the progress of the school was expressed by the founders who said he had been informed that the enrollment was almost twice that of any other engineering department of the university, and that he was gratified that the trustees of the fund had given \$100,000 to the Aeroplane Institute of Technology, University of Michigan, Lehigh University, Cornell University and California Institute of Technology to assist in creating aeronautical instruction centers.

"In addition, I understand that four other universities in this country have established other chairs or departments of aeronautics, where elective studies in aeronautics may be taken by engineers, students in aeronautics, looking for a vocational prospect in the airplane industry. Including the above universities, I understand that there are in this country a total of twenty-three universities and colleges offering special courses in aeronautical work."

"Since my first interest in this School of Aviation my thoughts have been largely directed to the subject and I have endeavored to keep myself well informed in regard to its day development and their immediate effects."

"This has given me a number of doubts in my mind as to the future possibilities and even probabilities for the advancement of aviation, and the aeronautical flight results made by Captain Lindbergh should amaze any one in respect of probable and possible tendencies toward the subject. Frequently I am asked by young men who wish to take up the course of aeronautics that their classes are all theoretical without any practical work."

Telegram From Orville Wright

"It is an honor that any year who persons a sufficient course and is capable enough to complete it, leading to the degree of an aeronautical engineer, should find little difficulty in securing his place in the industry, and I look upon Captain Lindbergh as a fair example of what a young man of ambition, determination, resolute conduct and skill is able to accomplish."

Dean Blau read a telegram from Orville Wright, Chairman of the Advisory Committee of the School of Aviation,

which read: "Request I cannot be present at the opening of the new building and the inspection of the laboratories of the Daniel Guggenheim School of Aviation. Please express to Mr. Guggenheim my personal thanks for what he has done for aviation. I know the splendid equipment he has furnished will be used by the university with the greatest pride to education."

Earlier in the morning, Mr. Guggenheim and the guests attended the building, beginning with the wind-tunnel, 316 ft. long and 55 ft. wide, in which air is driven at a velocity of



The Guggenheim School of Aviation, N. Y. University.

180 miles an hour by an eight-bladed aluminum propeller, 14 feet in diameter and powered by a 200-horsepower motor.

Presenting a check for \$10,000 to the University, Mr. Guggenheim said he had come to advise and impress the men who live down so much for the field of aviation. Chanceller Brown said that Mr. Guggenheim was the father-figure of commercial aviation in this country and that he had touched the heart of the world by sending his expedition to search for those submerged French ships, *Neptunus* and *Cetis*, in the wild regions of Newfoundland.

Professor Alexander Kleman is in charge of the new school. He expects 150 men on enrollment of forty-four students, but he said just now the department has a greater enrollment than any other individual section of the engineering college.

Junkers Freight Plane Sets Two More Records

On May 12 two more records were established by the Junkers organization in Berlin, Germany, with their WZ-3 freight carrier type of aircraft equipped with Bristol Jupiter motor, 480 hp, piloted by Herr Schaefer.

The first was with a useful load of 3,273 lb. over a route of 301 mi., the average speed reached was 120 mph. The second was over a course of 1,000 km. with 1,520 kg. useful load, the average speed was 112.5 mph, also unbroken.

The previous record established with a machine of another manufacturer over a 622 mi. course and without useful load ran less than 112.6 mph.

N.A.C. Publishes Report on Ground Effect

The National Advisory Committee for Aeronautics has recently published Report No. 264, A Full-Scale Low-Drag Type of Ground Effect by Elmer G. Root. The report describes full flight tests which were made with a Vought VE 7 airplane to determine the effects of being close to the ground. It is found that the drag of an airplane is substantially reduced upon approaching the ground and that the reduction may be increased still further by decreasing the distance between the aircraft and the ground. Several types of ground effect aircraft have had such freedom as evidence. Some of this aircraft may be obtained upon application to the National Advisory Committee for Aeronautics, Washington, D. C.

The Anodic Oxidation Treatment of Duralumin

By LIEUT. COMDR. WM. NELSON (C.C.), U. S. N.

DURALUMIN as a structural material for aircraft is of little use to the airplane industry unless suitable means for protecting the metal against corrosion are followed. Of the many methods that have been tried, the electrochemical process has proved to be particularly effective. Unfortunately, electro-plating aluminum alloys is exceedingly difficult and even after one has done a job with some degree of success, the results are not always permanent. It is this impermanence of the coatings that causes concern. It has been noted in some cases of electro-plating that corrosion actually increased over what could normally be expected as a corrective measure due to the electrolytic action between the plate and the base metal. Red oxide from the plating solution, considerable work has been done on building up the oxidized film on aluminum and duralumin by electro-chromic and straight electrolyzed means as an added protection against corrosion. Perhaps the most successful method of protection is the anodic oxidation used by electro-chromic means developed first in England.

The anodic oxidation treatment for aluminum alloys consists of applying the surface of the part by making it the anode in a chrome acid solution through which electric current is directed. As can be expected, although small, there is an actual loss in weight that apparently is the loss of some of the base metal. The film produced is very thin, and adherent to the base metal. It need not, however, be considered a part of the part. The anodic oxidation treatment produces the finished surface uniformly with no rolled domains giving the material a light gray velvety appearance. This treatment renders the aluminum very resistant to corrosive influences, but the full benefit of this type of oxidized surface



Structural effects of acidic treatment and effects on duralumin against salt spray exposure.

is not obtained without the use of a final paint or varnish finish as will be pointed out later on.

It is perhaps possible to anodically treat the greater number of the aluminum alloys which are high in aluminum, but the present application has been limited to those containing less than 5 per cent of copper. High current consumption has caused the anodizing for the manganese-copper and aluminum



Manganese-dioxide and aluminum anodic parts, which have been successfully treated.

alloys, whenever the low breakdown voltage paralleling its use where less than 5 percent copper exists. The presence of colored steel, brass, or other ferrous metals in the aluminum parts being oxidized causes complete failure to produce an anodically oxidized surface on the aluminum. When steel is present in the parts being treated, the current will run freely without the usual increase in voltage. Attempts to treat a duralumin coating with a steel wire in the heating apparatus will result in the rapid copper oxidation, and because, in the bath with aluminum, are destroyed by the operation. However, since the aircraft industry is primarily concerned with aluminum and duralumin and since these exist well within the range of the limits found, the anodic oxidation process is of immense practical benefit there.

Sealed-enclosed Objects Treated Equally Well

It makes little difference what shape the material to be treated may assume so far as the formation of the film is concerned. The film formed on the larger parts is just as good as that on the fine contact with the surface of the part so that tubes and other non-enclosed objects are treated equally well on the inside surfaces as on the outside surfaces. This feature enters into the treatment of assemblies as being of great importance. Parts and rivets in the aluminum ordinarily very minute are also treated provided the liquid covers these spaces. The value of this is readily recognized in view of the combination of corrosion in parts, rivets, washers, nuts, etc., when the part, as expected, is subjected to a corrosive influence.

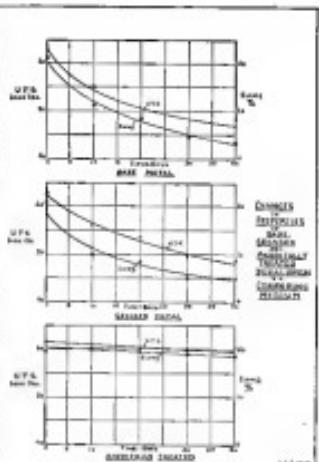
The current consumption during the operation of treating a piece of aluminum or duralumin is dependent on the area

of the exposed surface of the piece. Consequently sand blasting and other striking processes cause exceedingly high currents to flow compared to that produced with a similar weight of aluminum. However, there is nothing to advise as to what may be the maximum weight of the article. Considered duralumin which is being used is any reconditioning plant should be cleaned by some other process than blasting or striking, if it is to be properly treated. It is believed that some of the pits in a corroded piece of metal are not satisfactorily treated by the process due to the products of corrosion on such pits, so it is conceivable to these looking for results to ignore entirely clean surfaces.

Disadvantage in Treating Individual Parts

The use of the tank or the anode apparatus as one load on the side of the pieces that can be treated, the other in the degree with which subsequent flashes can be applied. An assembled part made up of take can be treated moderately very rapidly, but the individual parts applied to the tank will be too numerous for the same system of treatment may be adopted. In such case it appears advisable to individually treat the individual parts. The disadvantage of treating individual parts lies in the fact that the parts into the oxide film. It is, therefore, advisable to treat as simple assemblies as is possible, provided a relatively inexpensive bath or paint or varnish can be applied afterwards. In an assembly which is to be treated, the washers, nuts, washers, and nuts should be applied to the base frame immediately after the bath. Care is to cover the composed coil reader at no time. Tests on anodically treated parts show that the film is produced in a point very close to the points on the duralumin surfaces. However, parts which are to be combined to produce winglight parts should be anodically treated prior to assembly.

Good yields in aluminum and duralumin except the acidic treatment very rapidly, producing a film over the cold which is as good as that on the ordinary surface. While poorly made do not take the acidic baths efficiently. In such case



anodized film is burned out and the film is discontinuous. Washed aluminum parts which have undergone the auxiliary treatment and which have then been anodically treated have failed on tests due apparently to the washing out of the bath and other foreign substances. Invariably the anodic bath is used as an excellent test of the value of a cold in aluminum.

The anodic oxidation treatment is not known to affect the heat treatment of duralumin nor does subsequent heat treatment affect the oxidation particularly, provided there is no working of the metal. This feature should not enter into any problems of the overall construction, however, for in most cases the oxidation usually occurs after the working and heat treatment are completed.

Treatment Carried Out in Steel Tank

The acidic treatment is carried out as a still tank of suitable capacity, the electrolyte being a dilute solution of chrome acid. The tank is so arranged that the temperature of the bath can be controlled, and so that the electrolyte is continuously agitated. Various means of heating, cooling and agitating the solution are practicable. The tank having the character of a still is necessary to prevent evaporation of the acid or the parts to be treated.

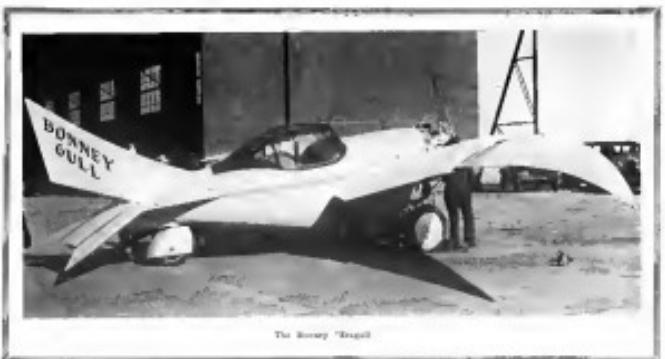
There is apparently no change in the bath due to operation excepting the evaporation of water. This evaporation is taken care of by the addition of water at periodic intervals so that the concentration of the solution does not change materially. It is considered advisable, however, to check the concentration of the solution at intervals to insure correct concentration. Also, water and air should not be allowed to accumulate in the bottom of the tank tank.

A motor generator set supplies the electrical power. The generator should be short wound and should be fitted with a variable resistance in the field so that the voltage over in



Tensile specimens subjected to the salt spray to determine the effects of previous treatment of duralumin when anodically treated and untreated.

(Cont. on page 2315)



The Human Thread

Bird-Like Design Features Bonney "Seagull"

By Reproducing the Same Aerodynamic Characteristics as those of the Gulf Lessor W. Rosney Expects to Give his Plane a Similar Performance

FOUR YEARS ago Leonard W. Raussey, of Philadelphia, Ia., I., announced the idea of building an airplane modeled after the form of a bird and in that way to reproduce the enviable characteristics of bird flight. His book on "The Avian Aeroplane" well known for his ability to glide long distances, and by reproducing the same aerodynamic characteristics as those of the bird Mr. Raussey expects to give birds

The Bessie "Beagle," as it is called, is now ready to be test flights at Stratford, L. I., N. Y. It is an exceptionally well built of all-metal construction, being powered with a new cylinder radial engine built by Mr. Bessie. The fuselage is well faired with a comfortable, covered cockpit fitting into the streamlined form very nicely. Similar to a bird the wings can change their angle of incidence, angle of deflection, or can be folded while in flight. The area of the elevator can also be easily changed from the cockpit.

Independent Movement of Wing Societies

When Mr. Bentley dived on the wasp as a model, a wasp was caught, killed, and a plaster cast made of its wings and body. The wings and body were drawn to scale, and from these drawings the necessary measurements were taken. The results of the Bentley Biogrid are shown as exact reproduction of the body of a wasp. After a series of wind-tunnel experiments at Massachusetts Institute of Technology and at the Bureau of Engineering School of Aeronautics, New York University it developed to model the wasp's flight. The model was built of wire and of dimensions from the wings of the real. In plan and taper the wings closely resemble those of the bird. The center of pressure movement is small, being only ten or eleven inches.

Members of the wings can be moved independent of the rest of the wing. The mechanism for all the motion is

is worked out respectively by means of bell cracks and beams or by a hydrostatic mechanism developed by Mr. Boussey. The wings have dihedral of ten degrees up to a point at half the semi-span and from there a gradual inclining out to the wing tip. Similar to a gull the wings come to a point at the tip. By means of a simple mechanism, the tip can be moved backward and forward through approximately eighteen or twenty degrees about a point where the aileron begins.

The entire wing is made of durashell. There are three durashell tubes that support the main body of the span. They are arranged in a triangle, with two at the upper surface of the wing and the other half-way between, at the mid-point of the span of the wing. The arrangement of the tubes is strengthened by having a Warren truss connecting them, riveted into place. There are lateral formers or ribs to give the wing the proper camber. The wing is sealed with 655 an added durashell sheeting riveted to reinforcing angle bars of durashell. The trailing edge of the wing is made up and down similar to an aileron. This movement is created by a bell crank so arranged that it can be locked in any position. The rear part of the propeller is supported by a bearing which is a star wheel in action, thus producing a long base and a low profile wing section. This section of the wing is riveted to the movable wing tip by a flat flexible metal coupling giving the wing a smooth surface from the wing stab to the tip.

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lugs, creating the fuselage and the conversion being flexible. Each lower fuselage tube in the wing is connected to a portion of the hydrostatic mechanism. The cylinders around these two positions are linked together at a point 21° from the vertical. This allows the angle of incidence of the wings to be changed. The two stabilizers connecting the upper wing tubes and creating the fuselage are connected by another steel tube crossing the fuselage. This third tube is also connected to the point 21° from the bottom of the fuselage where the cylinder and hydrostatic mechanism is attached to the fuselage. This is the only place where the wings are attached to the fuselage. As this tube can be rotated about its axis the angle of incidence of the wings can be changed. The wings are fitted by rotating them through many degrees (allowing angle of incidence) without changing the position of the center of gravity of the fuselage. These safety mechanisms, called the center section, is built of welded steel tubing.

Final Side by Side Control

Similar to a bird the fuselage is fairly large being very wide and deep. It is of conventional monocoque construction, plywood and fabric covered, finished in yellow patterned dope. The forward part of the fuselage being taken up by the gasoline tank at the top and by the motor section and wing control below the tank.

The specimen cockpit is mounted after the interior of an automobile. The seats are heavily upholstered in leather. There is plenty of room for luggage, tools etc. The cockpit is covered by a transparent covering, giving a very large field of vision.

The plane is equipped with dual side by side control. All the controls are arranged in the conventional way. The cockpit and wings are fitted with electric lights.

All the tail surfaces are of very black section. The vertical fin and the rudder are quite conventional, unless it may be said that the rudder shape is reduced. The vertical tail area is increased by the flaring out of the tail wheel. By sliding past of the elevator tips into the center part of the elevator the elevator area can be increased, thus producing stability.



© 2014 Pearson

for different conditions of balance without changing the horizontal stabilizing setting. This is controlled by a cable from the cockpit.

The landing gear is of cantilever construction, having rubber discs in compression to absorb the shock. The steel tubes

g us to it's way is to give us added traction. It is em-
phasized that the lift of this area will carry the weight of the
driving gear. Hydrostatic brakes are employed in such a
way that either one or both wheels may be braked. The total
weight consists of a small, rubber tired wheel. The rubber tire
is considered sufficient to absorb the shock. The upper half
of this wheel is covered with sheet diamond wire. The lower
half is covered with the yellow tire facing made to measure the
tire size.

The engine was designed by Mr. Bourne. It is a single cylinder radial, air-cooled engine calculated to develop 150 h.p. at 1600 r.p.m. The cylinder are of steel aluminum heads.

Surround
W
Hannay
Dennison and
Woodford at
the "Hannay
House". The
service is
at the church door.

The valve seats, spark-plug bushing, and hold-down bolts are all tapered. The engine is equipped with dual ignition. There is no supercharger; compressor on the engine are therefore.

Mr. Bessney claims that the efficiency of the engine is increased by the use of a rotary fuel impeller, acting as a suction and supercharger. This rotary impeller is driven at 1000 rpm. by a set of planetary gears. An injection pump is used. The injector is equipped with a tank large enough for five or six starts. A gravity fuel system is used. The tanks are of welded aluminum. The gasoline tank and oil tanks are of thirty and ten gallons respectively. A vacuum feed gasoline is used.

A close inspection of the plane will bring out one particular point. Every possible effort has been made to make the plane as aerodynamically perfect as possible. The workmanship is excellent. As has been said before, wind tunnel tests have been made on models and there is every indication that the experiment is going to prove a success. At present Mr. Deacon is having a little trouble with his engine due to surges but it is expected that test flight tests will be made within a few days.

The several specifications provided to Mr. Brown are

American Airplanes Fly 23,000,000 Miles

More than 23,000,000 miles were flown by civil and commercial aircraft in the United States during 1926. In addition to this mileage of heavier-than-air craft it is estimated that a total of 37,000 miles were flown by lighter-than-air craft during the year.

Report from the Bureau are transport operators and operations engaged in sightseeing, exhibitions, advertising, photo-copy, crop dusting and other branches of aerial work indicate that approximately 23,500,000 miles were traveled by the flights of 1,500 planes during the past year, using an average speed of 85 mph as a basis of computation. If the Army, Navy and Coast Guard flying miles were to be added to that figure the total American air mileage for heavier-than-air aircraft would be 30,500,000.

Flying corps regular members flew 184 planes totaling a total scheduled mileage of 4,942,172 miles in 1926. Reports from all air operations indicate that 94,353 passengers were carried as plane passengers of change during the year. The number of paying passengers transported totaled 415,567. The total number of hours flown reported was 254,313 and the pay freight earned amounted to \$85,386. In reports to the Department of Commerce indicate that 5,000 students were given training in aviation in 1926.

Whaling Fleets Use Planes for Spotting

Airplanes for spotting whales in the latest device employed by the whaling fleets in the Pacific in order to increase their catches. Captain LeMay-Perry, probably the foremost Pacific whaler today, who owns a fleet of steamers and several small stations along the coast, is a believer in the airplane as a means of increasing the catches. He will have six airplanes about annually on observation during the whaling season. The planes will fly over the favored whaling grounds off Vancouver Island, British Columbia, and over the waters off and near the shore stations informed. Spotting a whale from an airplane in order to spotting a whaler. In other words, a whale is visible up to twenty-five miles. In other words, expect to bring back the numerous catches to a figure approaching that of a year ago.

Cairo-Cape Town Flight Ends Successfully

The flight of the Royal Air Force from Cairo, Egypt, to Cape Town, South Africa, and back, a distance of 11,000 miles, which began May 22, came to a successful conclusion under the command of Air Commander Sandom, returned safely to the Egyptian airfields, at Cairo.

This flight, which began March 20, kept entirely to prearranged schedules. The engines ran perfectly and smoothly and landing fields throughout the route were found in excellent condition.

One of the novelties of the flight was the sighting of four kinds of elephants. At one time the planes flew low, consisting 120 elephants, which stampeded at the approach of the machines.



The Four R.A.F. Flying-Squadron III F's, that completed the Cairo to Cape Town and return flight, on the Velloziya airfield.

Curtiss Pilot Goes to South America

W. H. "Mac" McMullen, one of the best-known pilots of the Curtiss Flying Service at Garden City, sailed recently for South America to demonstrate Curtis "Hawk" pursuit planes on Chile. Two of these machines are now in Santiago, Chile, and McMullen will have charge of them assembly and flight tests. He is following in the footsteps of Lieutenant Jimmy Doolittle and George Caudell, who handled all Curtis Aerobatic teams with their remarkable flights over the Andes in the early "Hawks."

McMullen is no stranger to South America, having spent a year there in 1926, demonstrating Curtis products in the Argentine, and it was partly because of this experience that he was selected for his present work in Chile.

McMullen has been flying for the Curtiss Company since 1912 and has covered the majority of the seas of the world in his capacity as a test pilot and demonstrator. Perhaps his outstanding achievement in this respect was the construction of more than three thousand square miles of the Miami-Homestead-Florida Everglades, from an altitude of ten thousand feet. He has also mapped all of Worcester and Nissen Counties in New York, made aerial surveys for the extension of high tension power lines in Virginia and photographed several large cities, such as Greater New York, Syracuse, N. Y. and St. Petersburg, Florida.

Characteristics of Propeller Sections

Report No. 29, describing "Characteristics of Propeller Sections," compiled by Edmund N. Jaschinski, for the National Advisory Committee for Aeronautics, deals with tests that were carried out at the National Advisory and Technical Laboratory of the National Advisory Committee for Aeronautics, at Langley Field, Virginia, by the Bureau of Aeronautics as propeller sections. The sections tested at pressures of 4 and 20 atmospheres correspond to Reynolds Numbers of about 171,000 and 3,900,000. The results obtained, besides providing data for the design of propellers, should be of special interest because of the opportunity afforded for the study of airfoils as a family of airfoil sections having different thickness ratios.

The report may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D.C.

Demonstration to Start Air Taxi Service

The Eastern Aircraft Corporation, proprietors of the Danvers Airport, Atlantic, Mass., will begin about June 15 the operation of an air taxi service to all parts of New England. The first flight will also be made from their field. The Eastern Aircraft Corporation are the western representatives for the Kinner Aircraft & Motor Corporation, of Glendale, Cal., and the Eastern Massachusetts dealers for the Ware planes, manufactured by the Advance Aircraft Co. of Troy, Ohio.

Conversation Between Plane and Ground

A striking demonstration of the developments which have been achieved in radio communication was given in Washington on May 21, when a conversation between operators of an airplane and a ground station in the Commerce Department's Bureau of Standards, located in the office, was conducted by a regular commercial radio station for the benefit of all listeners within range of the station.

The participants in this broadcast conversation were Dr. George K. Beaman, Director of the Bureau of Standards, and W. H. Bentz, head of the Aircraft Division of the Ford Motor Company. Two days before, telephone and radio communication was carried on between the Assistant Secretary of Commerce for Aeronautics, W. P. MacCracken, Jr., and operators of an airplane en route from Quantico, Virginia, to Bolling Field at Washington. This conversation, however, was not broadcast.

The conversation between Dr. Beaman and Mr. Bentz took place about 12:30 p.m. and was broadcast through station 6BC of the Radio Corporation of America. After the enroute had explained the details of the demonstration to the radio station, Dr. Beaman requested a telephone operator to establish a connection with airplane 93 and the transmitter antenna.

During the course of the conversation Dr. Beaman explained, for the benefit of the radio listeners, the significance of the experiment and the effort to which the Department of Commerce is assisting in the development of commercial aviation.

The development of the radio aids has been entrusted to the Bureau of Standards, states Dr. Beaman. They are three main types of the direction finding methods, which are aerial today to keep low traffic in the course, namely, beam-like radio-telephony and radio telephones. The Government will establish ground stations and sending radio telephone messages to the airplanes and as time goes on the airplanes will receive and more and more be equipped with radio telephone transmitters, so that it will eventually become common for air travelers to telephone to their friends on the ground.

New Orleans-Pitmeadow Bids

Bids were opened at noon on May 17, for the operation of services between New Orleans and Pitmeadow, La., and between Pitmeadow, Vicksburg, and Vicksburg, Miss., G. C. for the operating of the mail to and from Frenchmen Passes touching the ports of New Orleans and Seattle.

Only one proposal was received for service on the Pitmeadow route. This was submitted by Arthur E. Compton at the rate of \$10 per round trip. Mr. Compton is the present controller of this route.

Two proposals were received for service on the Seattle-Vicksburg route. The Northwest Air Service, Inc., Everett Hubbard, president, Seattle, Wash., submitted a proposal at \$130 per round trip. The other proposal was submitted by Leo Hader of Seattle, Washington, at \$950 per round trip.

The service over these two routes contains in taking mails from the post office ship for foreign posts leave left the docks respectively the mail to the outgoing ship at Pitmeadow and Vicksburg. Mail from incoming ships is packed up at those points and carried by delivery to the post office. Supplies are carried on the service and mails are advanced several hours in both directions.

Watson Gets Indiana Air King Agency

Earl C. Watson, of Brazil, Ind., and former Army air service pilot has closed a contract with the National Defense System of Lomax, Ill., for the Indiana sales right of Air-King airplanes.

Mr. Watson states that there is unusual interest being manifested in Indiana in aviation. Many new students are being trained and from all indications he expects to make the Air-King the most popular plane in Indiana.



Dr. L. Prandtl, Britain's first women pilot taking charge for the second time of the British team in a race against Germany. She has received a flight of honor from the new works owned for a light airplane.

Aeronautical Mechanics Organize

The mechanics engaged on the various flying fields in and around New York recently formed an association, which will be known as the Aeronautical Mechanics Association of America. An organization of this kind should grow rapidly among the mechanics engaged in running the various aeronautical institutions to join.

The main reason for this organization is to promote good fellowship among the remaining number of people making up the ranks of those who work as mechanics in the industry. The aims and objects of the association are all devoted to mechanics and apprentices. It will be especially interested in helping apprentices to obtain the various aeronautical Mechanics Association of America, Curtiss Flying Field, Garden City, L.I., N.Y., full information can be obtained.

Dr. L. Prandtl Awarded Gold Medal

At a recent Council Meeting of the Royal Aeronautical Society it was unanimously decided to award the Gold Medal of the Society to Dr. L. Prandtl in recognition of his remarkable contributions to the science of aerodynamics. The history of the Farnsworth-Wilber Wright Memorial Lecture by Dr. L. Prandtl was the occasion for the special presentation of the highest honor the Society can confer. The Gold Medal has been awarded to the following:—

Wright Brothers, May, 1915; Prof. Charles, Collier, May, 1915; Prof. E. T. Bush, May, 1915; Prof. G. Baynes, May, 1915; Prof. Leicester, May, 1920; Dr. Prandtl, March, 1927.

Distinguished Flying Cross of Simple Design

The design of the Distinguished Flying Cross awarded by the President to Capt. James L. Doolittle, aviator, is presented by the Post Age Correspondents on May 26, 1927, with descriptions of a few minor details.



Distinguished Flying Cross

The medal which recently received the approval of the Post Age Correspondents was submitted by Miss Elizabeth Wili and A. E. Dulau, War Reporters on duty at the office of the Quartermaster General of the Army. A board prepared of both Army and Navy officers passed upon the medal, which has also received the approval of both the Secretary of War and the Secretary of the Navy. Similar medals will be presented to the Pan-American Flies, who so far have only received citations, and will be given to them by the President upon their arrival in Washington.

Geo. A. Wies Announces New Flying Course

Instruction has been increased from Geo. A. Wies, Inc. of Middletown, N. Y., of what appears to be a new idea in flying training. Mr. Wies is giving a "100-mile" flying course designed to teach a man to handle an airplane in the air. He reports that the course covers all the various areas of aviation in plain English, just as it is taught by book, but does not drive the lesson professional points, and who therefore require a form of instruction totally different from that usually offered.

The "100-mile" course consists of ten to fifteen flights of six to ten miles each, often preceded with special instruction on the art of flying. No instruction is given in landings or take-off, although the student is permitted to "follow-through" on the controls on several of each. Within this distance Mr. Wies finds that most students can become quite proficient both in straight flight and as slow turns.

For this instruction Mr. Wies uses a Curtiss JN-4H, an OX Timm Air and a Warbird Travel Air. All are equipped with Pioneer Air Distance Recorders, the use of which eliminates all need for time records. Flights are measured in miles instead of in minutes as was formerly necessary.

It is understood that students who satisfactorily complete the "100-mile" course may continue their training, either to perfect their air work or to possess buildings and become full-fledged pilots.

This course has appealed particularly to men engaged in the engineering and manufacturing departments of local aircraft factories, and the first class of twelve has been recruited entirely from such plants.

Wade and Wells Plan Record Globe Flight

Louis Lough Wade, one of the three pilots in the army's 1924 world flight, and Lester Wells, holder of the record-distance record in a single-engine biplane, have agreed to undertake an attempt to make the world flight on the large or completed in 15 days.

They will try to pilot a twin engine plane across the seas, mountain ranges, and deserts of the known world. It is stated that a third man will accompany them in commanding radio operator and navigating, and between Japan and India a fourth man, a mechanic, will bring them to their flight against time. It is planned to take the air from Long Island, New York, on June 15, 1927, and to fly over the Atlantic Ocean to our next stop in San Francisco. The long start will be made in order to get them over Pennsylvania, after which one of the two men will fly by night, and on to the United States Air Mail track. The great twenty mile banane of the air and fields will serve as guides well down at which time they expect to reach the Great Divide between Larance and Helena, Wyo. From there they will cross the Pacific Ocean to Japan, in due time arriving at Honolulu and Midway Island, and then on to Hong Kong, China, across Siberia and Russia to Paris, London, (Quonset), St. John's, and so to New York City. The distance to be flown is 20,622 miles, and if a route schedule is maintained, the flight will be made in 265 hrs.

Curtiss Flying Service Speeds Up

The Curtiss Flying Service, Inc., of Glendale, Calif., N. Y., reports that the first two weeks of May were the longest in the history of the service. Through crowded the field of business, social, and tourist, planes were flying day and night, trying to accommodate passengers who wanted to make first hop in the air. On Sunday, May 14, over three hundred and fifty passengers were carried and the total for the two weeks was something over eight hundred passengers.

In addition to the large amount of passenger business, the Flying Service was emphatically busy in other phases of its operations. The visit of the Atlantic Fleet to New York necessitated much interest and all of the service organizations, as well as several newspapers, electrical plants, fi-



Custer Field in Boston May 14.

photograph the fleet from the air, while half a dozen sightseeing trips were made over the harbor carrying passengers who chose this method of getting a bird's-eye view of Uncle Sam's mighty armada. Other operations included aerial photography and mapping and one night flight from Louisville to Cleveland with pictures of the Kentucky Derby.

The total flying time for two weeks was over thirty-one hours, and M. H. Merrill, manager of the Curtiss Flying Service, Inc., estimates that 10 hours of paid commercial flying a day is somewhat of a record for any flying organization.

FOUR WORLD'S RECORDS for the VOUGHT "CORSAIR"

ALTITUDE

12,178 feet



Lt. G. E. Henderson, U.S.N.

SPEED

106 Kilometers



Lt. S. W. Callaway, U.S.N.

SPEED

106 Kilometers



Lt. J. D. Barnes, U.S.N.

SPEED

100 Kilometers



Lt. R. H. Smith, U.S.N.

A STANDARD

THE same seaplane, A Voight "Corsair" Naval Seaplane, on April 14, 1927, reached a record altitude of 22,178 feet, carrying a ballast load and 1679 lbs. useful load, averaging 147.263 miles per hour for 100 kilometers around a 25 kilometer closed course. Lieut. S. W. Henderson, U.S.N. Pilot.

THE same seaplane, on April 25, 1927, with the same ballast load and 1679 lbs. useful load, averaging 147.263 miles per hour for 100 kilometers, carrying 1880 lbs useful load including 1102 lbs. ballast. Lieut. J. D. Barnes, U.S.N. Pilot.

AND still a fourth World's Record was made by the same "Corsair" seaplane on May 21, 1927, when an average speed of 130.93 miles per hour for 1000 kilometers was made over the same closed course! Lieut. Rutledge Irvine, U.S.N. Pilot.



The "Corsair" is designed to meet the P.D.W. Wing License.

CHANCE VOUGHT CORPORATION
LONG ISLAND CITY, NEW YORK



Lt. S. W. Callaway, G. R. Henderson and J. D. Barnes, U. S. N.
in front of the "Wasp" engine, Vought "Corsair" biplane.

Three New World's Records for the "WASP"

This standard Vought Seaplane with a standard "Wasp" Engine holds the unique distinction of having established world's records for both altitude and speed. Particularly remarkable is the fact that Lt. S. W. Callaway's average speed was more than five miles per hour greater around a closed course than the winning time in the two-place observation land plane race at the National Air Races in Philadelphia last year.

This remarkable performance is the natural result of superior plane and engine design, and skillful piloting. Again the Navy gives substantial proof that its flying officers and service equipment are second to none.

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LANDING FACILITIES

MUNICIPAL FIELD AND CONNECTICUT RIVER

ON AIRWAYS MAPS

Altitude

On April 14, 1927, Lieut. G. R. Henderson, U.S.N. in a "Corsair" Seaplane reached 22,178 feet with a dead load of 1,102 pounds and a total useful load of over 1,900 pounds.

Speed 100 Kilometers

On April 23, 1927, Lieut. S. W. Callaway, U.S.N. with the same plane and load averaged 147.263 miles per hour for 100 kilometers around a closed course.

Speed 500 Kilometers

On April 30, 1927, Lieut. J. D. Barnes, U.S.N. under the same conditions averaged 136.023 miles per hour for 500 kilometers.



DARTMOUTH-TEX IS USED ON CHANCE VOUGHT PLANES



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—and **QUALITY** is the controlling factor in the specifications of

DARTMOUTH-TEX

aero-cloth and tapes for Vought planes —

DARTMOUTH-TEX is the name adopted for the Dacron cloth which has been used by the leading aircraft manufacturers in America for 16 years. Dartmouth-Tex is a grade A, mercerized cotton, full count fabric, 36 inches wide for wings, tail surfaces and fuselage covering.

It is guaranteed to meet the most rigid government specifications, and can be obtained on commercial rolls, which insures against cracking and wrinkling. It is not a processed fabric, although it can be supplied in processed form if desired. Durable tapes of all kinds—surface tapes, pack, (sealing)—as may be required are ready for immediate delivery in all quantities.

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...and now record-breaking aircraft use

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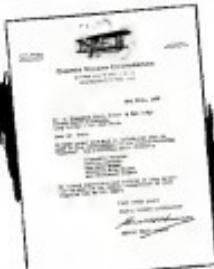
For an entire century Edward Smith products have unfailingly proved their value on boats and yachts of every description — even to the famous winners of the International Cup Races.

New these materials are winning a similar position in the aircraft field, where

beauty and durability of finish are paramount considerations.

The Chance Vought Corporation used Edward Smith products on their record-breaking "Corsair" as a natural result of over three years of practical tests on aircraft of their manufacture. Aquatite Spar Varnish, Eosolac Lacquer, Easco Metal Primer, Aluminum Wing Enamel and Metal-wood Enamel were used.

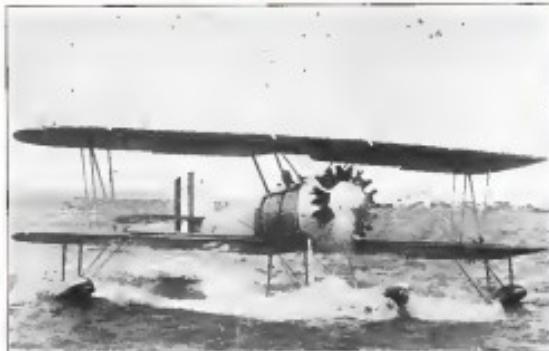
We shall be glad to demonstrate to other aircraft manufacturers the practical advantages of using Smith Paints and Varnishes for interior and exterior finishes and for metal, wood as well.



EDWARD SMITH & COMPANY

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STANDARD STEEL PROPELLER



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Equipped with

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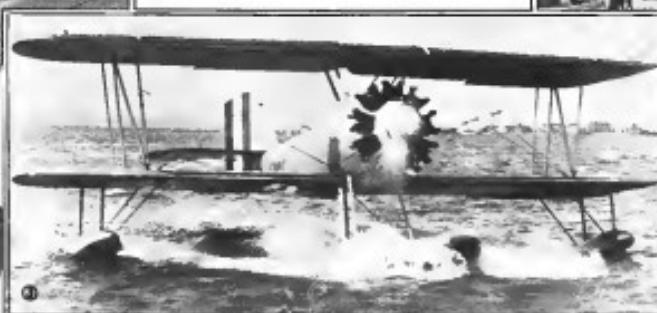


Vought Planes in U. S. Navy Service on and Land

1. Vought GUV on exhibition. Night flying. Vought Navy is the All-American aircraft. Small planes under the class of a Vought. Vought is the largest manufacturer of flying machines in the United States at Akron, Ohio.

2. Over Georgia. A Vought GUV on the coast of the U.S.A. Memphis.

3. A record breaker. The Vought GUV set a record for speed racing for seaplanes around a 100-mile course. Competing at night. A Vought GUV won the race. The first time ever a Vought GUV has flown back to America, last night of the U.S.A. Pennell Harbor, Maine, April 11, 1927.





HASKELITE helps break records

IN the Vought Navy Corsair plane that broke altitude and speed records for seaplanes, HASKELITE played an important part. This has been true in almost all recent record breaking performances.

At the air races last year—at the All American Aircraft Exposition this year—wherever the best in aircraft construction is seen, our oft repeated statement that 85% of aircraft plywood is HASKELITE has proven true. HASKELITE is not ordinary plywood. Its strength, light weight and waterproof quality are unequalled and so dependable that designers and builders naturally insist on its use.

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SUPERCHARGERS FOR USE IN VOUGHT PLANES

SUPPLIED TO THE U. S. NAVY

*It is a privilege to add our congratulations
on the recent achievements of the Corsair.*

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INDIANAPOLIS



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When the demand for aircraft strain production facilities and successive history is eclipsed.—

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Fuel flowed safely through "PARKER" tube couplings in the Vought Navy Corsair stock plane which brought back to America three World's seaplane records —these couplings will not need replacement—they are dependable for the life of the ship.

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Long Island City, N. Y.



Night Flying Equipment for the Airdrome, IV

By WILBUR T. HARDING

IF THE problem of properly lighting a large airdrome or even a small one with numerous obstacles is considered, it will be found that it is not advisable to use a parallel distribution system, but to use a series constant current system. The series mounted circuit breaker has been used extensively for street lighting for some time, but the system

presently maintaining such installations. The special lamp was not desired as it would increase the stock necessary to be carried.

An investigation at McCook Field, was conducted to determine the safe feasible method of using a series circuit. These tests have shown that such a system may be well installed properly. The system is very similar to that used for underground boundary street lighting and uses the moving coil relay. Single conductor, 3500 volt, Faraday cable, No. 12, should keep the field passing either the bumper has around the boundary and adjacent to the various obstacles as practical. This cable should be buried directly in the ground in a shallow trench.

To eliminate the necessity and to allow use of regular 120 volt lamps as individual lamp transformer may be used. The primary is designed for the constant current series circuit and so insulated. The secondary is designed to operate under one condition of load only. Per boundary lights are 25 watt, 115 volt lamp should be used with a transformer likewise rated. Any other setting lamp will not operate satisfactorily upon this transformer. Likewise, another trans-

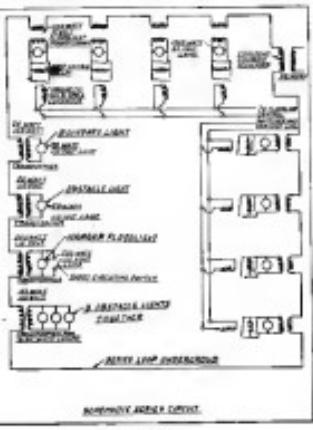


FIG. 14

ture to lighting an airdrome was used as to require special consideration and study at McCook Field.

In a constant current series system a single conductor passes from lamp to lamp so that a loop is completed through a moving coil transformer as shown in Fig. 14 to maximize voltage across to maintain constant current in the series loop. For street lighting the usual current used is 5.5 amperes. The lamps used on such a circuit are special 65 watt lamps and require a special socket to take care of lamp failure. That is, a fine cutout socket but its terminals are separated by a thin film disc, which passes over upon failure of the lamp, thus to the high impressed voltage can then complete the circuit and the lamp light. The system described above usually has no employed distribution system.

For airdrome use there are several objections to the above arrangement. Part of these objections are as follows:

- Underground insulation. It is a difficult problem to safely insulate a high voltage conductor terminating in a flat cutout socket on a pipe system.
- The transformer must be designed to operate one or more 25 watt lamps in parallel. Consequently for a building airope, when two obstacle lights are desired it will be necessary to use either one transformer for two 25 watt lamps, or two transformers each for a 50 watt lamp. The latter is the more desirable as the insulation is better and lamp lifetime of one will not affect the other.
- A special lamp with special filaments is required, which necessitates elimination of personnel making replacements. (The Air Corps has in mind with modified Army

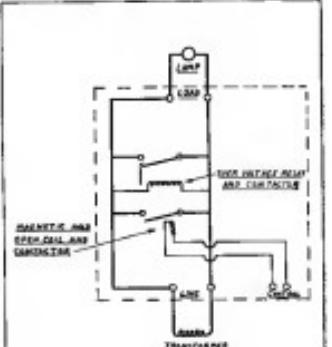


FIG. 15

former is necessary for the 50 watt obstacle lights. The transformer must be used for the conditions for which it is designed and so other.

The transformer must also be designed to operate one or more 25 watt lamps in parallel. Consequently for a building airope, when two obstacle lights are desired it will be necessary to use either one transformer for two 25 watt lamps, or two transformers each for a 50 watt lamp. The latter is the more desirable as the insulation is better and lamp lifetime of one will not affect the other.

For each lamp (per group of lamps) one transformer is connected into the series loop. The secondary can be con-

nected to the lamp, per lamp; or multiple with HNL coils. The outer insulation and tape can be melted in a small box tied with compound and buried in the ground, eliminating wiring of lead joints. The advantages of such a system are as follows:

- The entire installation cost is lower than equivalent parallel circuit.
- The high voltage conductor is below ground.
- The possibility of shorting a lamp would not cause additional hazard to life or property.
- A short or open of the lamp circuit will not effect the rest of the circuit or heat the transformer.

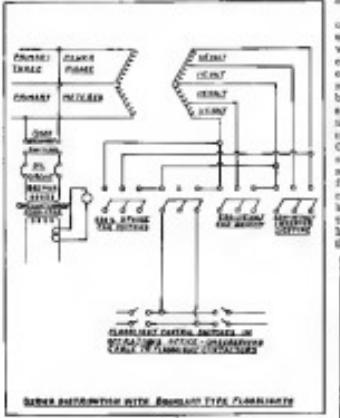


FIG. 16

- Lamps may be installed on buildings if desired.
- Film coils and spiral lamps are not required.
- All lamps operate at normal voltage.

Application. Figure 26 gives a schematic diagram of the method of using series lighting. The following equipment should be connected to the series circuit so as to operate on demand:

- Armoring Lights. Each should have 25 watts, 115 volt lamp transformer.
- Obstacle Lights. For isolated lights each should have one 50 watt, 115 volt lamp. For groups of lights, each group should have one 115 volt lamp transformer designed to operate the group of lights.
- First Ground Protection. Twisted 18 watt lamps are used in parallel. The lamp transformer should be designed for a total of 18 watts at 115 volts and to operate 18 lamps in parallel.

For multiple operation of lamps it will be necessary to replace separate lamps immediately.

Special Applications. It is possible to operate lamps of a non-conductive insulation from the earthed conductor. It is not advisable to do this in the series-wired arrangement, as it will result in multiple lamps. If it is desired to turn a lamp off, all that is necessary is to short the transformer secondary. This allows the secondary current to follow a path of less resistance. The resulting short circuiting current is approximately full load current, but the loss involved is small. If

the secondary is opened the resistance of the primary increases and in minutes insulation serves to the primary, a higher voltage is required. The loss in open secondary insulation is more than twice shared secondary insulation. Consequently, it is best of lamp breaking from a series transformer the secondary should be shorted. Two applications of this can be made for aeroheads one:

- Flare Floodlights.** To operate a flare floodlight with a 115 volt 216 watt lamp a transformer at the same rating is required. This transformer also may be buried in the ground and power fed with a single pole switch so that the lamp off the side of the secondary. HNL coils should be used from transformer to lamp.

Building Floor Floodlights. A special application for operating four 1500 watt, 32 volt transformers is at present under consideration. It is possible to use a transformer which operates very satisfactorily upon open load or short circuit overcurrent. The transformer is driven at a high frequency in open circuit. Consequently when lamp becomes shorted it is removed by using a fuse across the lamp which would puncture at 300 volts. However, as control of these floodlights is desired at some central point a special remote control conductor is being developed. Figure 28 gives the electrical connection. One single pole contactor normally shorts the transformer secondary and the lamp is then turned on. To light the lamp a supplementary switch 115 volt magnetic and neutral is taken from the transformer which receives power as long as it is excited. A second single pole contactor is supplied, normally held open but arranged to close with spring action when tripped by a short cell. This short cell placed across the lamp is arranged to operate at 300 volts. Upon failure of the lamp the secondary voltage rises with rise in primary

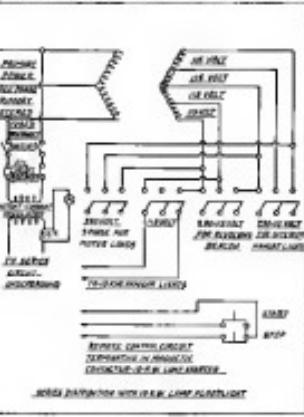


FIG. 17

voltage and trips the contactor shorting the lamp. Thus, lamp breakage will not affect the operation of the rest of the circuit. This will never short until the lamp has been replaced.

Reservoir. The distribution systems described previously cannot be used with the water circuit. Figure 28 shows

how the transformer and distribution circuits should be arranged so that all boundary strip lightights operate as a series circuit. A 250 volt circuit is required for operating the 120 volt lights, and a 120 volt circuit for operating the 250 volt lights. The control switch for the conductor may be two conductors No 12 Parkelectric wire, 600 volt. The receiver should be installed above ground as the floodlight equipment in a winter light metal box. The receiving antenna should be connected to the 250-12 volt circuit with three conductor Parkelectric cable, and may be connected at the conductor boundary. The received current regulator or power controller should be connected on the primary side of the receiver. Antennas should be connected on the primary side of the receiver. The antenna should be connected directly to the series circuit without breaker or switch but with a current transformer and meter in the circuit as shown.

Periodic Inspections Necessary

For a continuous wing the series lighting and the 100 lamp floodlight the distribution should be as shown by Figure 22. The floodlight connections are as described previously. To save the expense of the antenna and the weight of the receiver it is recommended to handle the antenna, receiver and antenna housing lights. Additional lighting floodlight is supplied by the 250 125 volt transmitter.

Once a system is installed it should be given periodic inspections. All lamps or lenses should be replaced at once if the system is to function properly in safeguarding the lives of those using the field at night.

The receiving antenna and receiver should receive regular attention and magnetic couplings, when used, should be kept parallel and the same rate of rotation as the antenna to prevent the installation from having a large bite.

The information contained and discussed briefly in this article is the result of extensive investigations by the U. S. Army Air Corps, carried on at McCook Field, Dayton, Ohio. The contents represent briefly the result of the investigations to date and should more detailed information, an report of the various individuals cited as desired, the same may be obtained from the Technical Report of that Field.

Photos and Charts Reduced to Balloons

In a report from Hamburg, Germany, it is stated that weather charts and photographs have been successfully transmitted by radio from the Hamburg Aerodrome to a balloon through a chain of five balloons.

The result of the experiment is considered all the more satisfactory since the small station at the airfield was able to transmit the charts and pictures, despite the fact that both the powerful wireless stations of Rundfunkanstalten Norddeutschland were at the same time working continuously. The transmitters had failed, and the station had to depend on a string of three 2000 foot balloons.

The same experiment will be tried with a passenger-carrying airplane. It is believed that will be able to avoid storms better when aided by weather charts than with the present written reports.

Air Services at Copenhagen Increased

The Danish 1947 Spring season opened recently when the Danish Air Transport Co commenced its Copenhagen-Hamburg service. Swedish and Dutch aviation companies also commenced their traffic over Copenhagen, while the German aviation interests continued their services to Berlin, which has long been the chief center of European air traffic. This traffic is mainly to carry on the Danish services from Hamburg to Copenhagen, but this did not work out satisfactorily.

It has been decided that the Danish Air Transport Co. will operate over the route Copenhagen-Hamburg only, using the new four motor Jumbo airplanes, capable of carrying 18 passengers, and will follow schedules with 6 passenger capacity. The Swedish company's airplanes are of the three-

engines Junker type; the Dutch, Fokker F. VII Ag while the German aircraft are Junkers, Albatrosses, Dorniers and Heinkel.

With the services offered by the Germans, Dutch, Swedish and Danish lines, Copenhagen is assured of a sufficient number of daily planes in and out to care for the steadily growing traffic, both passenger and freight. It is possible to travel from Copenhagen by airplane and reach the same day the following cities: London, Paris, Rome, Frankfurt, Munich, Vienna, Prague, Berlin, Hamburg, Copenhagen, Malmö, Borosund, Malmo, Roma, Vienna, Budapest, Belgrade, Warsaw, Constantinople and Warsaw. This is made possible by the connections available in Hamburg and Berlin.

French Still Plan Paris-New York Flight

Captain Lindbergh's successful flight from New York to Paris has increased the desire of French aviators to make a flight from Paris to New York in a French plane. The Trans-Atlantic projects are now being discussed, one by



Nieuport-Delage NiD 29, Paris, France.

M. Docteur in a French plane, the other by Lieutenant Tardieu in a Bernard plane. Both planes are especially built for such a flight and can be made ready in a short time. They are heavy multi-engined planes of the type which all experts, including Captain Lindbergh himself, consider best for long overseas flights under ordinary conditions.

Nations to Confer on Classifying Aircraft

An international conference on the classification of aircraft to be held in Paris, France at the latter part of this month. Seven nations will be represented, Norway, Great Britain, the United States, Germany, France, Italy and Japan. Captain Charles A. Macmillan, President of the American Bureau of Shipping, will represent the United States. He will be joined on the Leviathan, accompanied by Professor Alexander Klesow of the Guggenheim School of Management of New York University, who will lecture on the economics of aircraft.

Captain Macmillan said before he sailed that he had been in communication with officials of the Russo-Yamal, in charge of the classification of Russian aircraft, and that he would present the American viewpoint with the consent of the Government. He also conferred with officials of the Department of Commerce. The proposed plan will be on the lines of ship classification.

New Douglas Twin Engine Bomber

The Douglas All-Metal Twin-Engine Bomber (ED-1) was designed primarily for carrier and seaplane work. It has interchangeable leading and trailing gear for deck landing. Two Wright R-1820-82 bantam duty engines are mounted in the wings on either side of the fuselage. No performance data on the plane has been obtained as it is at the present time undergoing test at the Naval Air Station, Anacostia, D. C.

Anodic Oxidation Treatment of Duralumin

Cont'd from page 1289

varied from 500 to one hundred volts. The protection coverage is based on the entire area of the largest parts to be treated and is such that two to six amperes per square foot are required. The voltage being controlled, the amperage taken care of itself provided the capacity of the circuit is not exceeded.

The bars carrying the anodes are usually a brass rod supported above the tank and agitated periodically.

In addition to the equipment mentioned as being required for the stated process, a vacuum tank for washing of the solution after the treatment is a necessity. This tank should have a capacity of 100 cubic feet minimum, i.e., 100 cubic feet for cleaning the surface of the cleaned duralumin solution and for rinsing immediately after treatment is a desirable feature.

Free Ventilation Essential

Free ventilation over the anode tank is essential to avoid loss in the effluent resulting from breathing the gases given off. Where the space is adequately ventilated, a heat and light fixture are not required.

The standard operation of randomly mounting a piece of metal is difficult unless the technique is followed carefully. The piece to be treated is suspended in the solution with the anodized material above the salt level to make a dry contact. The temperature of the bath having been raised to the desired value and the electrical connections having been made, the voltage is varied slowly by cutting out the full resistance of the generator. If the bath is covered with a thin film of paint, the voltage should be applied to the anode and the paint removed. If the bath is covered with a thin film of oil, the anode should be lowered into the water until the anode is submerged. In this case, however, the voltage should be applied to the cathode first. The applied EMF is controlled during the entire oxidizing period. The operator uses a graph and a stop watch or timer to insure accurate results.

The voltage at which pitting commences is determined to 60, and on this the upper limit of the voltage is set. The voltage appears on the anode, the metal and the current will run up to a maximum point as the anode becomes pitted which may be checked by excessive voltage and current, and current will concentrate at these points where the metal is exposed.

After the region has been built up on the anodes or阳极, or阳极, the electrolytic power is shut off and the metal thoroughly rinsed in tap water. Unless this cleaning is done, the salt will be left in the pores of the metal, which will be stained yellow or spots. These yellow stains are not necessarily pitting in appearance. The washers having been concentrated the pit is set to dry.

If sufficient oxidation exists in the bath, electrolysis may result with pitting of the material at the highest level. This pitting is due to the concentration of salt liquid at the surface. The concentration of salt liquid at the surface will reduce the anode potential and increase the cathode potential. Corrosion and oxidation should be used as it is necessary.

Gray Anodic Film on Duralumin

In order to insure complete development of a piece in one immersing immersion bath, or coating the current down must be used, but it is essential that the anodes be sufficiently large to carry the current so that all of the anode surface is covered. The use of the salt spray bath for insulation will result against the original anode film in the clay or broken soil which is made with the metal.

The anode film on aluminum has a blue tint and an durability is in gray. In both cases it is relatively uniform presenting a wet glass or microscope appearance. Due to the method of treating by double immersion, about half of the surface being treated is each immersion, a band appears of the bright blue as the part which is exposed to the anode film. This band is of a rather different color than the remainder of the piece but tends from blue as completely as behaved

to exist. No matter whether the metal is treated by a single immersion or by a double immersion, the electrical contact points will not be properly protected. The base surface is not protected and the anode film is not adhered to it to insure against corrosion there. In the single immersion method a small area of the durability also exists which has no anodic treatment requiring special attention to avoid breaking action by corrosion to that area.

Corrosion Stopped by Treated Material

The effect of the anodic treatment on duralumin properties is as follows: the anodic treatment of duralumin produces a slight loss in weight due to the surface being oxidized by conversion of the duralumin oxide, and as a consequence there is a slight reduction in weight and in ultimate tensile strength. The loss in weight of some tests specimens treated was 1 to 1,000 to 1 to 1,000, a negligible quantity. The reduction in ultimate tensile strength as a number of open circuit voltages was also shown present. There was also a drop in the elongation to break. Hard tests made show that the original properties of the duralumin in this respect are essentially the same after treatment.

Experiments conducted on untreated and randomly treated duralumin show that corrosion is definitely slowed off in the treated material for a very long time after the untreated material is exposed to the salt spray. The test is as follows to indicate that randomly treated duralumin after a more than four years' exposure to salt spray has longer life. However, due to one cause or another, some pitting takes place in sheets tested and subsequently subjected to corrosive influences. This pitting is very marked in this randomly treated considerable reduction in strength due to the pitting action when stressed.

Specimens 200 ft. thick in the untreated condition showed no appreciable change through the metal, and to some extent after only 10 days in the salt spray, whereas, the treated duralumin showed only a very few minor pits after the same period in the salt spray.

Anodically treated duralumin in contact with untreated duralumin in the salt spray showed a sympathetic action on the part of the treated material but the corrosion in the randomly treated piece was taken, whereas that in the other was great. Untreated nests in sheets which have been oxidized have a tendency to corrode in the normal manner.

For Superior for Application of Paint, Etc.

A number of experiments of anodically treated duralumin sheet about 1/16 in. thick have illustrated the action of a salt spray for many days without any material corrosion. When the salt spray was applied to the untreated metal, water locally affected the area where painted for its strength was concerned. The anodic treatment healthily insulated and hastened durability of the paint. Untreated surfaces in stronger solutions the anodic treatment does not seem to be quite so beneficial.

It can be seen from the foregoing on corrosion that some additional steps in the coating procedure by the anodic process as well as the paint, may be taken advantage to do. Further in more stringent weathering conditions material there are bound to be certain areas such as rotted sections, scratches, etc., which have not the protection that exists on the rest of the surface. So, although the whole is not as weak as the weakest part, it is desired to have no new water proofing composed as a supplemental protective medium.

The oxide surface of anodically treated aluminum and magnesium is a good base for the application of paints, varnishes, oils, etc. The adhesives produced in general before the lead, the adhesive being made by partial absorption of the preservative applied. This can be readily demonstrated by immersing the treated metal in a bath in which a dye is suspended. The paint film

Cont'd from page 1287

New Adjustable Pilot's Seat

Engineers at McCook Field have recently developed a simple type of adjustable pilot's seat. It is designed to enable pilots of different stature to locate their seats at the proper height. The seat itself is shown in the photograph above with armrest angular joints. The four main shifting guides are of steel plate riveted to the seat. The guides are steel



Adjustable Pilot's Seat.

brackets forming part of the structure of heavy steel directly attached to it. The rubber sheet is adjusted to support part of the weight of the pilot so that the seat follows automatically the position selected by the pilot.

To make an adjustment the operating handle must be pulled to release the latches; then the pilot must release part of his weight from the seat and should adjust himself to the required position; then the handles can be released and the full weight returned to the seat. The seat will engage into the base seat to the selected position.

Bolivia to Subsidize Commercial Aviation

A presidential decree has been signed authorizing a contract between the Bolivian Government and a newly-organized air transportation company, the "Compania Boliviana de Transportes Aereos," to establish a mail and passenger service between La Paz and Rio Grande, to be paid the subsidy in quarterly installments, one car regular service to be established over at least one of the projected lines. The proposed lines are: (1) La Paz to Coquio, with landings at Rupunca, Trinidad, Villabots and Riberola; and (2) La Paz to Sucre.

In return the company has agreed to several stipulations, of which the following are the most important:

"To receive, without charge, all mail and baggage up to 100 pounds, or 100 cubic feet of the space, per carriage, and to pay subsidies for regular services to be established on both routes mentioned."

"To establish and maintain working funds and supply all expenses for the service, amounting in a maximum of about \$1,000,000, with the additional provision at the time of concluding the contract, the sum to be indicated by the government, and the same to be paid in quarterly installments, one car regular service to be established over at least one of the routes."

"To serve, without charge, all passengers up to 100 cubic feet of space per car of the passenger tariff in regular commercial flights, and to establish annually a fixed subsidy to the Government for agency."

Exporting of Aircraft Products Increases

United States exports of aircraft, aircraft engines, and aircraft parts and accessories during 1926 according to a report made by the Aviation Division of the Commerce Department. Excluding first, total shipments of these articles during 1926 were valued at \$16,039,000 which was an increase of about a third as compared with the 1925 figure. The greater part of this increase was in engines with about eleven times as many units and nearly three and a half times the value of the 1925 shipments. Exports of aircraft, engines and parts during the first three months of this year were also up, the value being \$4,000,000, or 20 percent more. The United Kingdom was our leading market for Aircraft products in 1926, followed by Soviet Russia, Peru, Mexico, and Canada.

The preliminary figures covering aircraft production during 1926 indicate a substantial increase over 1925. There were produced during 1926, 1,329 planes, both land and water type, of which 123 were seaplane jobs according to a special survey by the Bureau of the Census.

The figures show a total production according to the Bureau of the Census of 900,380, 867 in 1925 and 806 planes in 1924, showing a steady growth in production. The year was characterized by the large increase in number of purely commercial designs offered for sale, the manufacture of land-powered aircraft engines for aircraft power plants, and the resurgence given the manufacturing industry by the adoption of a five-year building program by the War and Navy Departments.

Canadian Pilot to Try Ottawa-London Hop

Capt. E. L. Janney, formerly of the Canadian Royal Flying Corps, announced recently that he will attempt a 1,000 mile non-stop flight from Ottawa, Canada to London, England, keeping off shore June 30. His route, will be from Ottawa to Montreal, then the Great St. Lawrence River to Balsam Lake, across the Gulf of St. Lawrence to Tapscott Bay, Newfoundland. From Tapscott Bay Capt. Janney will get his bearings and head straight for the south coast of Ireland, where he plans to fly direct to London.

A radio operator who will be on board the aeroplane of the plane will be carried by Captain Janney. He has not decided on the route of each to be used, although it will be based on the distance capable of carrying ample supplies and equipment for two persons.

Captain Janney expects to make the flight as a part of his initial celebration and hopes to arrive in London the following morning, Dominion Day. The observance will mark the sixtieth anniversary of the signing of the treaty which brought the provinces together under the Dominion Government.

Captain Wilkins Takes Off From Fairbanks

Capt. George H. Wilkins, Australian explorer, and Alex Guskov, Detroit aviator, who are undertaking a new Arctic expedition, took off yesterday from Fairbanks, Alaska, bound for the northernmost tip of the American continent. From Point Barrow, they plan to fly across the unexplored arctic region north of the American continent in the hope of reaching Greenland, far to the north and east. The "Detroit News" failed to make on the first attempt, but eventually succeeded in getting into the air.

The distance from Point Barrow to Greenland is 1,600 miles and Wilkins and Guskov face the prospect of spending the winter in the Arctic while awaiting favorable weather conditions.

Wilkins hopes to be able to determine whether the failed Arctic contract exists and he will also gather meteorological and other scientific data which may be of value in future Arctic aviation. From Point Barrow, Wilkins has left on an unexplored course through the fog over the polar ice pack. This place has never been traversed by men although seals and geese by the millions in that direction in Spring which gives indication of the practicability of flight in that area.

Anodic Oxidation Treatment of Duralumin

Cont. from page 222

tion on the part of the protective engineer—one of the greatest difficulties in casting duralumin—is that of making the paint or varnish adhere. In addition, it places the protection in a place where the scale and the coating work together to afford corrosion agents.

For the present, however, of view the oxidized effect of anodic treatment and a preservative is an approach toward the ultimate in he expected.

Laurens, red protective compounds, grecian, vermillion and paints can all be used effectively on anodically treated parts. The first three can only be regarded as temporary means of protection, whereas varnishes and paints are permanent. Tests conducted in the laboratories indicate that there is little difference between aluminum anodized and wood or rubber varnishes due to corrosion. Self-cutting tools have not yet had a need to show the best combination of varnishes and paints in use on anodically oxidized duralumin, but the same rules should hold here as have been established for untreated aluminum alloys.

Practically Eliminates Corrosion

This is one important feature associated with the application of compounds on anodically treated duralumin that will give long intervals at small cost. When the metal leaves the bath, is rinsed, and then dried, all the surfaces in very close contact for an ideal condition to apply paints or varnishes. If a cost is not applied at this time subsequent cleaning and additional time must be allowed for it. It has therefore been found that the application of the primer of the finish must be done at once after the bath.

Many evaluations of cost have been made on the anodic treatment of aluminum or duralumin, but in each case they have been based on experimental apparatus which is usually expensive. A high first cost for proper and efficient equipment results in high operating costs per unit area of material treated, and low first cost with inadequate equipment at a high operating cost. With most tools, considering the size of the parts to be treated, the initial cost of the anodic oxidation plant should not be greater than for a paint booth of equal size and double the figure per pound.

The greatest stumbling block of those using duralumin in aircraft structures lies here corrosion. The anodic process has in a measure removed this difficulty, and adds further to the firmness of the latter means of protecting the metal in service. It should naturally be even more important to a protection for duralumin in the aircraft industry. This galvanizing has been for the prevention of corrosion in steel

Austin Meets Hangar Problems

The growth of commercial aviation has called for a solution of the problem of finding suitable hangars, maintenance buildings and servicing of planes. The Austin Company, of Cleveland, Ohio, have endeavored to keep pace with this expansion and for the past ten years have kept abreast of all the latest developments in the aviation field.

Austin engineers have given careful study to the advantages and disadvantages of the various kinds and have sought to address to engineers and manufacturers employing an airport or facilities for the shelter and care of aircraft.

The Austin Company has designed and constructed hangars for some of the leading aircraft manufacturers of the country.

Plane Flies Over Washington's Route

A 45-Horsepower seaplane flew from Faro, Tenerife, New York City, over the Long Island soundseas through which Washington passed, on May 28, and took the plane making the trip in 1 hr. 22 min. Washington is a coastal and fair town, situated on the southern coast of the island.

The plane was piloted by Lt. James B. Clegg, a member of the naval air corps, and Lt. Ernest B. Shapley was in the plane to observe. The machine passed over Brooklyn, Jamaica, Hempstead, Astoria, Rockville, Staten Island, New Haven, and Providence, Rhode Island, and Falmouth.

Gliding Records

Purchased Gliders on May 3, at Passau, East Prussia, Germany, established a new World gliding record, for a consecutive glide, when he remained in the air for 14 hr., 9 min. The record glider record was held by Maximm, a Frenchman, who remained in the air for 13 hr., 43 min.

On May 10, Schatzl added another record to his list by soaring an arched distance of approximately 30 mi. without landing. He started at Rosenthal Field, Rosenheim, where an auxiliary plane met him when he was being held. The new record exceeds the old one by more than 5 mi.

New American Eagle Distributors

The American Eagle Aircraft Corporation, of Kansas City, Mo., have made the announcement that H. M. Brooks, of Dallas, has been appointed their Texas distributor; and L. M. Peacock, of Detroit, their agent in Michigan.



The new factory plant of the Durand-Melchioraine Airplane Co., covers 500,000 square feet in Friedrichshafen. Here it is to be built the super White 20, carrying 20-25 passengers.



Survey of Imperial Airways

The section of the manager and the administrator, Much at Croydon aerodrome, is proceeding satisfactorily. Blaauw A is nearly complete; longer B is intended to be ready for service by early August of 1928. The airfield, buildings, and wall foundations of the administration block are complete and the welding and plastering are well in hand. Demolition of the buildings in use will commence in June so the new buildings are ready for occupation. In connection with the Air Ministry (Croydon Aerodrome Extension) Act 1925, the work on the new road is practically complete and French Lane will be closed to traffic, while other traffic passes along it in the opposite direction. Presently there is under consideration for the creation of a road on the northern side of the administration block, and negotiations are proceeding satisfactorily.

At Heliopolis, the R.A.F. aerodrome, wireless station and meteorological stations are being used, and the Air Ministry has provided a hangar and workshop and stores accommodation. At Gaza a new aerodrome site has been acquired by Imperial Airways, Ltd. The Air Ministry has provided a hangar and a wireless and meteorological station to be used by the company who have, in addition, obtained accommodation for their passengers and staff. At the Royal Air Force flying ground at Duxford, wireless store and parking arrangements by Imperial Airways. Wireless and meteorological service will be provided by the Royal Air Force Station at Amman. At British Wells a landing ground has been prepared. This post is equipped with wireless station and wireless transmitter, a wireless and meteorological service for aircraft. Both permanent storage and pilotage accommodations have been provided by the company. At Beaufort Wells, the Royal Air Force intermediate landing ground has been equipped as an aerodrome, and a hangar has been provided by the Air Ministry. Accommodation for personnel has been provided by Imperial Airways while the wireless and meteorological stations have been provided by the Royal Air Force station at Haswell. At Mysore, the R.A.F. aerodrome, wireless station and meteorological stations are being used. A hangar has been provided by the Air Ministry and accommodation for personnel has been provided by the company. The administration in the Persian Gulf is still under consideration, but at Kostaki the Indian Government has assumed responsibility for the provision of the wireless and the necessary ground equipment, consisting of houses and wireless stations.

The aerodrome is to be at a position of the Persian station. Work is proceeding both on the part of the Indian Government and Imperial Airways, Ltd., who at other stations, are providing accommodation for personnel and passenger services. An officer of the Civil Aviation Department was appointed supervisor of the route and took up his duties in November.

Definite steps are being taken regarding the continental air route. It is becoming more and more evident that the N.Y.C. firm of Keegan will prove the most valuable for air navigation purposes, and may be selected to carry out the survey of the route for the present flights with spherical wireless. Preliminary arrangements with a N.Y.C. firm are in hand and conversations are being instituted with a view to publishing an agree-

mentally controlled operating plan for the operation of Non-heaven in situations where current or now available transoceanic routes of supply. The outcome of these experiments may have a considerable bearing on the starting of the Signal-links air route.

Arrangements are being made for the control of the electronic lights on the wireless stations of Croydon to increase the range of visibility, which is now limited by the distance the lights are above M.T. height. The flashlight or wireless aerodrome is to be converted into a mobile unit using a hydrogen torch, mounting an electric generator. The type will be replaced by a new design of gas-filled lamp now being evolved, which gives equal illumination and greater reliability with a considerable reduction of working cost. Suitable lighting systems are being devised for the aircraft, including the use of green signals.

Work is in progress on the construction of the new wireless station at Croydon aerodrome. The wireless station at Lympne has been re-equipped with modern apparatus, including a distance-finder receiver of the same type as that in use at Croydon, and work is progressing on the modernization of the Pulteney station. The stations at Croydon, Lympne and Pulteney maintain a constant watch for aircraft from dawn to dusk and are always ready, during the night, to receive incoming aircraft and to give information to the signal-links aerodrome. The cost of these three stations, including equipment and maintenance is approximately £20,000 annually.

The Air Ministry civil wireless wireless stations at Luton and Aldershot, the R.A.F. aerodrome, wireless station and meteorological stations are being used. A hangar has been provided by the Air Ministry and accommodation for personnel has been provided by the company. The administration in the Persian Gulf is still under consideration, but at Kostaki the Indian Government has assumed responsibility for the provision of the wireless and the necessary ground equipment, consisting of houses and wireless stations.

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Side Slips

By ROBERT B. BURGESS

There is one little experiment which the aviators, using Captain Langstrat as the subject, have made, in the course of one at the cameras, large impacts in low flight, were like to come up in back of him, shake his shoulder vigorously, and say, "Get up and drive, Old King. The weather reports are very favorable and conditions ideal for your New York-to-San Diego flight." We'd get him jolted up and say, "By George, I think we're in it." The impact would be all that. Everything was to go to hell in a minute and then we would wake him up after a while. Tell them at the field to drag out the stag and I'll be ready in a few minutes."

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Mr. G. S. I. reports that while on a visit to the All-American Aircraft Display in association with the recent Pan American Congress he met a man who introduced himself as being quite prominent in the industry. When he was asked whether or not he had done in a certain place he said, "Certainly not. I don't fly. I am an aviation executive."

Since this was furnished by Mr. G. S. I., we have placed one copy in our library, hoping of traced investigation on the case, in order to determine whether or not the man of my acquaintance is a man of突出的 importance in the industry. The informants in the mechanical engineers of the popular country state that there are great facilities to be had in commercial aviation. Mostly being able to rent the planes is supposed to bring in \$200 to \$200 per week and from these low positions the salaries run as high as airplane mechanics, airplane constructors, airplane representatives, aeronautical engineer to airplane manufacturer in which "outstanding profits" can be attained. According to him, the American aircraft industry is not yet fully developed and is still in its infancy. He said that in comparison with those other positions the highest annual rate at least \$60,000 a year and bases from 12 to 15 per cent two hours off for lunch.

PUBLISHER'S NEWS LETTER

It is safe to predict that within the next twelve months the front pages of the newspapers will be constantly given over to flights to all parts of the world. The publicity that has come to Captain Lindbergh and to the Chabrolle-Leroy crossing has literally been the flame that is attracting aeronautical media of every nationality. Financial backers appear to be willing to furnish the money for almost any kind of aerial venture. Cities and countries wish to see flights of extraordinary daring to advertise their advantages and gifts. Newspapers are anxious to pay fabulous sums for news accounts. Motion picture magnates compete with handbooks with large salaries. Prizes are being put up with lavish generosity. Pilots who are even considering attempting to do a non-stop flight are flooded with offers to use and carry them that and the other product for a handsome remuneration. The movie star, the press rag and the Chamber of Commerce will have to look to their laurels.

Which all goes to demonstrate two things. The public wants a hero to worship and from the earliest days the defining of chivalry has always been a harbinger of success. One of the greatest attractions of flying by the young men who wanted to enter the aviation field has been that the man who flew has always been regarded as some sort of a superhero by the mass on the ground. All is regarded as a distinct honor who can fly such a long time and so far. Pilots are always gratified at the conclusion of flights by what they feel was their safety in the air. And pilots who stand out as record breakers and stunt demons are given a higher class of their own, apart from other heroes. Crowds always gather to see flying feats carried out with a dismaying side. Straight flying appears to have lost its appeal. The termination of straight flights brings together crowds such as those at La Guardia and Croydon. All of which means that thousands of aviators all over the world are now dreaming of performing some feat that will place their names in the Aeronautical Hall of Fame.

Now that the North Atlantic and South Atlantic have been conquered, all eyes are centered on the Pacific. Many calculations have been made as to distances, weather conditions and possible air routes of the Pacific in the last few weeks since the last decade. The South Pole also has its hero. But the dream of man's flying

achievement is to be the round-the-world speed record. Already several groups in this country are at work on this ultimate air route, and from abroad come reports of similar ambitions. All the continents have been criss-crossed to many times by aircraft that little new remains to be done over land. The ocean stretches are now under attack and thus will come the grand class of speed and distance in globe trotting. Fame and fortune await the successful. The rest has begun. Price builders are being swamped with inquiries about equipment for long flights. Old timers who have been away from aerodynamics for several years are trying to re-enter the field. Everybody is enthusiastic and optimistic.

Just what effect all this great sport will have on commercial aviation is problematical. For the first few months of this year the accident list gave a decided setback to popular confidence. Then, with typical boldness, the trans-Atlantic flights have brought a renewed belief in the possibilities of aircraft. Once more, the drama of aerial travel appears to the public to be flooding the horizon with nose-calling prospects. It is just at this point that those who think seriously about the trend of aviation begin to become alarmed. The public does not distinguish between safety, commercial or record breaking flights. All air vehicles are viewed with equal awe and respect. The health of the future growth of the aeronautical industry is not only the production of safe and economical aircraft, but of making the public no longer thatophobia has been achieved. If the other air heroes are measured with the same end and loss of life that has been caused by the trans-Atlantic attempts, there will be a natural questioning as to whether such flights are worth while. Commercial aviation that is struggling to get ahead would be adversely affected and the base of our aeronautical prosperity threatened. Experimental flights for research, private owners to do almost anything with their planes. With the distances needed now at over 3,000 miles, and the duration at over 50 hours, with the physical endurance stretched almost to the limit—is it not a time to give some thought to the possible effect of all the fever regarding commercial development? So far it has been good, but prognosis of future record flights will do well to keep in mind the effect of inadvertence in commercial aviation and advise publicity upon a misinformed public.

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